



West Chatham Grant

Community Development Department, Town of Chatham

Funded by the Cape Cod Commission and Barnstable County

Connery Associates
Community Design Partnership

June, 2006

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Aerial Photo of the Western portion of the West Chatham Grant study area



Before



After

Preliminary photo montage of potential improvement
Digital rendering, courtesy P. Lagg, Chatham GIS Coordinator

Executive Summary

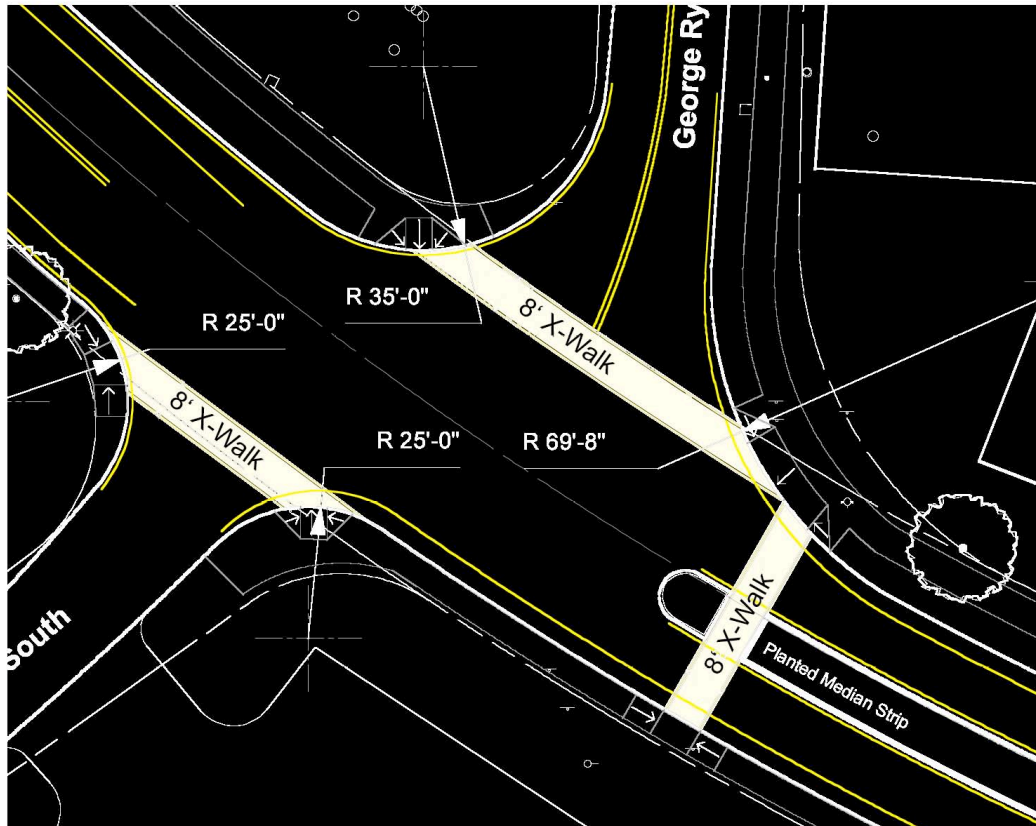
Chatham is concerned to maintain its cherished rural Cape Cod character, which is most eroded in the Main Street/Route 28 area of the West Chatham Grant study. There is also a striking need to improve the function of the road to lessen congestion, minimize accidents, and to improve the character and amenity level of the road, providing additional facilities for the neglected pedestrians and bicyclists of the area. Roadway improvements can also assist local merchants and help to create the distinct, thriving neighborhood commercial center identified in the Chatham Comprehensive Plan – particularly with the support and coordinated assistance of abutting businesses and landowners.

The purpose of the West Chatham Grant (WCG) project was to analyze the existing condition of the three lane segment of Main Street, Route 28, and its three intersections, and to make design recommendations for improvements to the road, right of way, connections to neighboring areas, the extension of the Mid Cape bike trail, and adjacent businesses. This project has evaluated a number of specific improvements that will make substantial improvements to traffic flow, vehicular and pedestrian safety, improve appearance and desirability of the roadway and the area, better organize entry and exit movements to commercial properties, ease turning movements and reduce delay, and provide gateway and district identity elements. The project also identified and explored the opportunities to provide an additional link to the extension of the mid-cape bike trail through Town property to the east of the study area, and the opportunities to expand and transition the improvements recommended for the West Chatham Grant study area to other, abutting portions of Rt. 28. Effort was also apportioned to reviewing and making recommendations for plans for new construction projects abutting the study area, which arose over the course of the project.

The project prepared many analytical and design drawings, prepared two powerpoint presentations, and made presentations during the course of the project to the Planning Board, to the business community, and to the Board of Selectmen. The public was notified and invited to each of these meetings, where the public was able to comment extensively and discuss aspects of the project with the consultant and town officials.

The West Chatham Grant study has resulted in overall recommendations for the Route 28/Main Street roadway of the study area, with geometric design and specific recommendations for each of the three intersections within the study. The study also makes recommendations for two linkages to the bike trail, for improvements to the conservation land acquired within the study area, for study of a new neighborhood access lane from Barn Hill Road to the post office area, and for improvements to the lighting and utility infrastructure of the study area. Implementation sequencing, responsibility, funding and prioritization have been identified in a spreadsheet to permit progress to be tracked and coordinated. As possible, items have been identified which can be accomplished at a local level, inexpensively and in the short term. Opportunities for implementation and leadership at the state, county, town and private level have also been noted. It is projected that a number of these early implementation items will prove

to meet or exceed their expectations, generating support for additional elements to be constructed in the mid term. Monitoring of progress and periodic review of the study will help to judge its success and to incorporate lessons learned into next step actions, maximizing benefits to the public. Implementation of these recommendations, in full or in part, can be expected to help attain the goals of the Comprehensive Plan and begin to establish a compact, legible neighborhood oriented commercial district, with safer, less congested traffic, and greater levels of amenity and interest for residents, visitors, bicyclists and pedestrians.



George Ryder Road Intersection Improvements

Shows Narrowed Curb Radii, Roadway Realignment, Planted Median, Pedestrian Crossings, ADA features, New and widened Sidewalks, Bike Lanes to West

Barn Hill Road Intersection Before & After



Foliage shown omitted

Recent Improvements



Preliminary Site improvements recently installed at the former Local Bites. Sloped curbing and plantings reinforce and soften the road edge, helping to organize traffic and ease turning movements



Trees have been planted in the islands of the Ocean State Job Lot parking lot, helping to break up the expanse of parking, and adding some needed foliage, shade and storm water uptake

West Chatham Grant — District Improvements Matrix

page 1

Goals	Issues	Strategy	Tasks	Implementers	Priority	Time Frame	Cost	Funding Source
Accident Reduction	Left turns at key intersections	Organize & clarify turns	Reduce curb radii opportunistically; Adjust traffic island geometry; Place new medians & islands; Upgrade signage & signalization	MHD/DPW	H	Long	High	MHD
	Confusion	Reduce ambiguity & unused pavement	Upgrade signage; Provide greater roadway definition by reducing lane widths & upgrading striping & markings	MHD/DPW	H	Medium	Low	Town/MHD
	Indistinct Intersections	Insert elements that provide vertical and horizontal organization & imageability	Plantings, signage, lighting, markings improve the presence and options of intersections	DPW	M	Short	Low	Town
Congestion Reduction	Limit turning movements	Reduce number and location of curb cuts, queues extending across intersections	Work w. landowners to evaluate existing & proposed aprons & driveways, case by case, to provide sufficient clearance for anticipated use; Eliminate duplicative curb cuts; Eliminate curb cuts w. in 75' of intersections, as poss., Create planted center medians at district entry points	Planning/ Private MHD	H	Medium	L/M	Town/Private/ MHD
	Maintain thru lane	Improve markings & signage	Reduce lane widths to 11'; repaint lane markings; provide improved route & side street signage	MHD/DPW	H	Short	Low	Town/MHD
	Wayfinding clarity	Improved signage & lighting	Provide improved, consistent informational signage; Install distinctive district lighting	DPW	M	S/L	L/M	Town
Public Transportation	stops not prominent or inviting	upgrade stops to bus shelters, improve signage	Locate, design and build bus shelters; Provide larger bus signage; Post schedules [Requires proposal & permitting in W. Chatham]	Cape Cod RTA	L	Medium	Low	CCRTA
Turning Movements	Traffic safety/ delay	Process turning traffic to minimize queuing of thru traffic	Medians reduce use of turning lane for through traffic; Improved signage encourages yielding to turning traffic; Improved signalization gives priority to turning traffic on a time/seasonal basis	MHD/DPW	H	Long	M/H	MHD/Town
	Sightlines	Improve Visibility	Adjust signage & plantings	DPW	M	Short	Low	MHD/Town
Sidewalks	Narrow (4'w) & N. side only	Enlarge & place full sidewalks on both sides of Rt 28	Enlarge N sidewalk to 6' w. planting area; Build 6' sidewalk to S side; Planted area inboard of sidewalk (varies); Make Handicapped Accessible	DPW	H	Medium	Medium	Town
Bicycle Lanes	None, poor cycling environment	Provide room on sidewalks & for use in roadway margins	Provide signage & markings for bicycles to share roadway within district; Provide alert signage for bicyclist on sidewalks; widen road margin & maintain w. sweeper	DPW	M	Short	Low	Town
Bike Trail Connections	Need notification and routing signage	Consistent alert & routing signage; services & interpretive	Provide regular, consistent route and informational signage to/from bike trail; Establish new link to trail thru Town property near Weatherboard Lane	DPW/Trail Cmte	H	Medium	L/M	Town/CCC
Parking	Poorly functioning; Distracts from district character	Redesign; move to rear of property; encourage shared use parking	Work w. owners & businesses to reduce unneeded parking area, redesign parking lots, place more parking to rear of buildings; Work w. property owners to establish shared district parking to encourage multiple patronage	Planning/ Private	H	Medium	L/M	Town/Private
Neighborhood Circulation	Traffic safety/ delay	Evaluate new link S of Rt 28; Signalize Barn Hill Rd	Study potential to implement new road alley alignment to S of Rt 28 businesses between PO & Barn Hill Rd; Evaluate implementation alternatives	Planning	M	Long	High	Town/ Private
Curb Cut Reductions	Traffic safety/ delay/ high traffic volume	Narrow existing curb cuts; Eliminate curb cuts; Relocate driveways to smooth turning	Review possible secondary access/ egress points to reduce impact at one intersection	Planning/ Private/MHD	H	Medium	Low	Town/ MHD
Signage & Signalization	Traffic safety/ delay	Upgrade traffic control signage; Upgrade Barn Hill Rd signalization; Evaluate yellow flasher at George Ryder Rd; Balance operational improvements w. off-peak vehicle speeds	Place multiple yield signs at intersection; Mark turning lanes; Place wayfinding signage; Relocate Barn Hill Rd flasher to catenary/mast arm location(s); Study benefits of introducing fully signalized traffic light at Barn Hill Rd; Study benefits of placing a yellow/red flasher at G Ryder Rd	MHD/DPW	H	Medium	L/M	MHD

Priority: H (High), M (Medium),

L (Low) Time Frame: Short (1 yr), Medium (1-5 yrs), Long (5+ yrs)

West Chatham Grant — District Improvements Matrix

page 2

Goals	Issues	Strategy	Tasks	Implementers	Priority	Time Frame	Cost	Funding Source
Roadway Conditions	Pavement deterioration/maintenance	Improve lane striping & x-walk markings; Install planted medians; Install curbing	Restripe roadway to 11' lanes; Place bicyclists road sharing icons in roadway; Zebra strip pedestrian x-ings; increase # of Ped X-ings - box ea. Intersection; Construct planted medians w. district gateway signage, raised curbing, shrub & tree plantings; install durable curbing at realigned roadway edge; provide 4' min. planted area between curbing and sidewalks, as poss.	DPW/MHD	H	S/L	L/H	Town/MHD
George Ryder Road	Large & indistinct intersection; turning hazards	Redesign intersection to provide greater clarity; Create a district entry median point; Improve turning movements; Encourage moderate speeds off-peak	Reduce intersection area by reorienting intersecting roadways; reduce curb radii to practical minimums; install planted median; reduce entering lane widths; Adjust superelevation of G Ryder Rd S, taper back 200'; Improve sightlines at G. Ryder Rd S.	MHD/DPW	H	L/M	High	MHD
Seaquanset Road	Moderate turning hazards	Improve intersection legibility	Reduce intersection width thru reductions of curb radii	MHD	M	L	Medium	MHD
Barn Hill Road	Significant left turn hazards and delays	Redesign intersection to facilitate turning traffic; Improve signalization; Create district entry median	Reduce lane widths entering intersection, redesign approach of Barn Hill Rd; Reduce curb radii to practical minimums; Upgrade flashing light - up to fully signalized; Create a planted entry median w. gateway signage & raised curbing	MHD/DPW	H	Long	High	MHD
Rt 28 General	Strip Character	Build on local, New England character; eliminate sprawl signifiers	Reduce lane widths to 11'; Provide ability to transition to bike lanes outside of district area; Upgrade tree and shrubbery plantings at roadside; provide additional, smaller scale elements unique to district	MHD/DPW	H	Short	L/M	Town
	Undistinguished lighting	Pedestrian oriented lighting; Evaluate lower roadway lighting	Study potential to install decorative, lower scale pedestrian oriented lighting illuminating sidewalks; Evaluate opportunities to install more frequent, handsome lower scale roadway lighting; Set design standard of metal halide lamping; Adopt 'Dark Skies' standards for light scatter	DPW	M	M/L	Medium	Town
	Utility wires & poles	Organize, bundle and minimize wiring; Evaluate opportunities to place utilities below grade	Initiate discussions to modify utility wires - remove excess & redundant wiring, bundle & organize wiring to reduce visual clutter, place wiring below grade & remove utility poles	Planning/DPW/Utilities	M	M/L	L/H	Town/Utilities
Buildings	Undistinguished and out of character; lack of prominence; Roadway setbacks too deep	Encourage greater levels of detailing, upkeep and maintenance, Encourage upper story construction & occupancies, taller facades; Encourage new buildings to be placed nearer the roadway	Work w. property owners & businesses to upgrade appearance & maintenance of buildings; Encourage installation of elements geared towards use & comfort of patrons; Encourage maintenance & renovations to upgrade and increase the quality of materials & level of detailing, incorporating local, historic design elements; Encourage renovations that add upper stories to existing buildings, increase the height & prominence of facades & bring additional upper story uses & occupancies; Encourage new construction to build closer to Rt 28, shifting parking to sides & rear of property	Planning/Private	M	S/L	L/H	Private
Properties	Unightly & poorly functioning parking lots; Minimal site plantings; Lack of pedestrian infrastructure	Redesign parking lots to be more efficient; Increase level of plantings & maintenance; Install more pedestrian and bicycle amenities; Minimize prominence of free standing signage	Work w. businesses & property owners to redesign parking lots to more efficient layouts, relocating and reducing curb cuts, smoothing circulation onto & within the property; Seek to eliminate curb cuts w. in 75' of intersections - provide elsewhere on Rt 28 or onto side streets; Encourage reductions of parking lots to make room for additional landscaping & building expansion; Encourage the placement of more site furnishings providing for the needs of patrons, pedestrians & cyclists; Encourage greater reliance on prominence of buildings & building signage, so that free standing signage can be reduced in size and eliminated as possible	Planning/Private	H	S/M	L/H	Private

Priority: H (High), M (Medium),

L (Low) Time Frame: Short (1 yr), Medium (1-5 yrs), Long (5+ yrs)



Central Portion of Route 28 looking East

West Chatham Grant



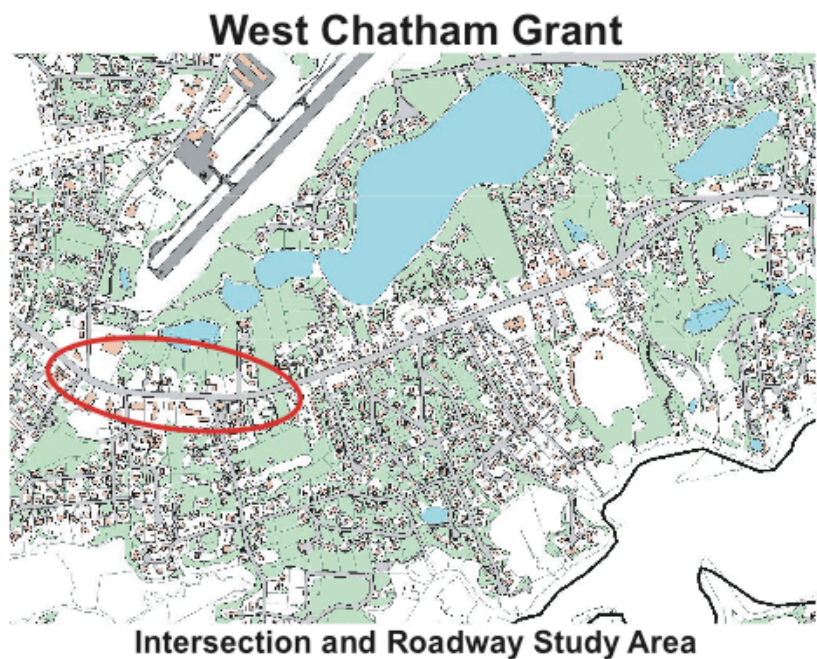
Route 28 Study Area

West Chatham Grant

Introduction

The team of Connery Associates and Community Design Partnership were selected by the Town of Chatham to conduct the West Chatham Grant project, funded by the Cape Cod Commission and Barnstable County. A primary goal of the Commission is to prevent the suburbanization of the rural lands of the Cape, and to prevent the erosion of long standing community character by anonymous highway strip development. The West Chatham commercial area of Route 28/Main Street between George Ryder Road and Barn Hill Road was selected for this study, in large part because it represents the greatest shortcomings of this road in one of the most beloved communities on the Cape. This site was also identified in Chatham's recent Comprehensive Plan as the preferred location for a neighborhood commercial center to provide needed local services and help to foster the development of community character and better differentiate this segment of Rt 28. Concurrently to this project, a rezoning of Chatham has also been undertaken, which has recommended revised, unified standards for this district that will assist the formation of a village center character and promote business vitality.

This project was conducted over the past year to gather and analyze available data pertaining to this district, incorporating input from Town officials, residents and local business owners. It has identified existing problems and projects future concerns, and recommended courses of action that are most likely to bring successful improvements to these problems, to maintain and open new opportunities, and to provide the groundwork for accomplishing the aims of the community and objectives of the Comprehensive Plan. These findings and recommendations have been presented and discussed publicly in a variety of forums, and revised and expanded to reflect new information, further study, and the input of the community.



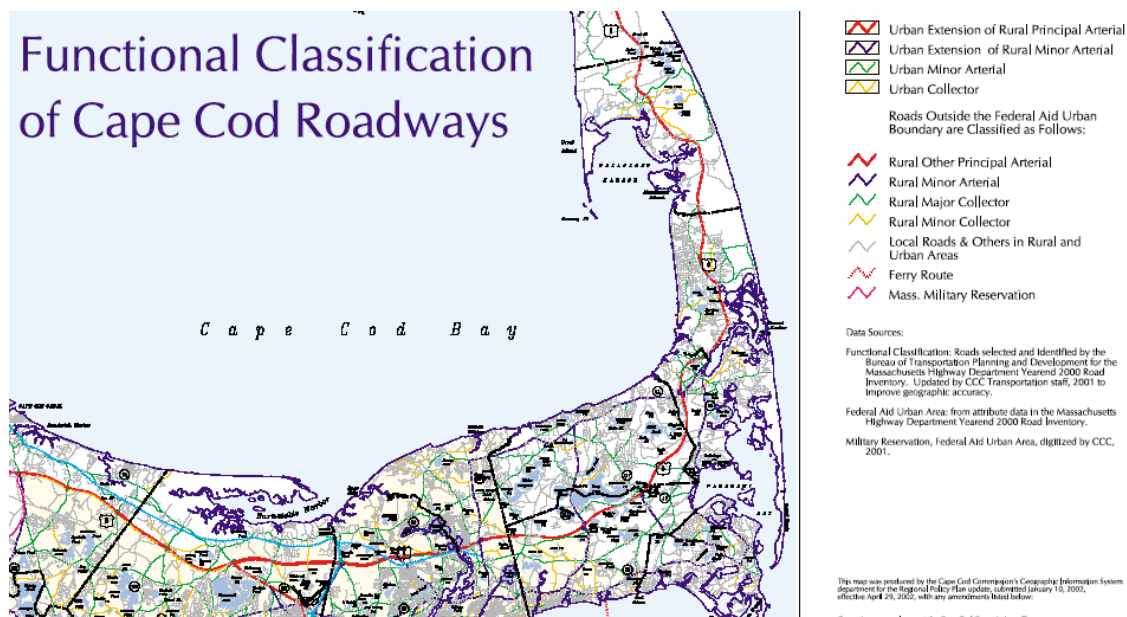
Project Principles:

The WCG study area can be considered to have explored the effects of suburban highway strip development, and the results have been disappointing to all. Therefore it is appropriate to investigate the benefits to be gained by reintroducing the elements of rural, more lower scale and traditional commercial districts and neighborhood centers.

- Project elements should seek to create or remedy the desired conditions using the simplest, most economical and durable techniques.
- Project elements should strive to perform multiple tasks and lend support to the overall project.
- Motorist behavioral changes should be encouraged through environmental and roadway design to the greatest possible degree.
- Signage and other control devices should be provided as supplementary guidance to roadway geometry and environmental cues.
- Roadway design should be primarily configured to accommodate the typical traffic demand, rather than seasonal or other peak conditions.
- Clarity and directness of action should be emphasized to ease decision making and to remove ambiguity in traffic movements.

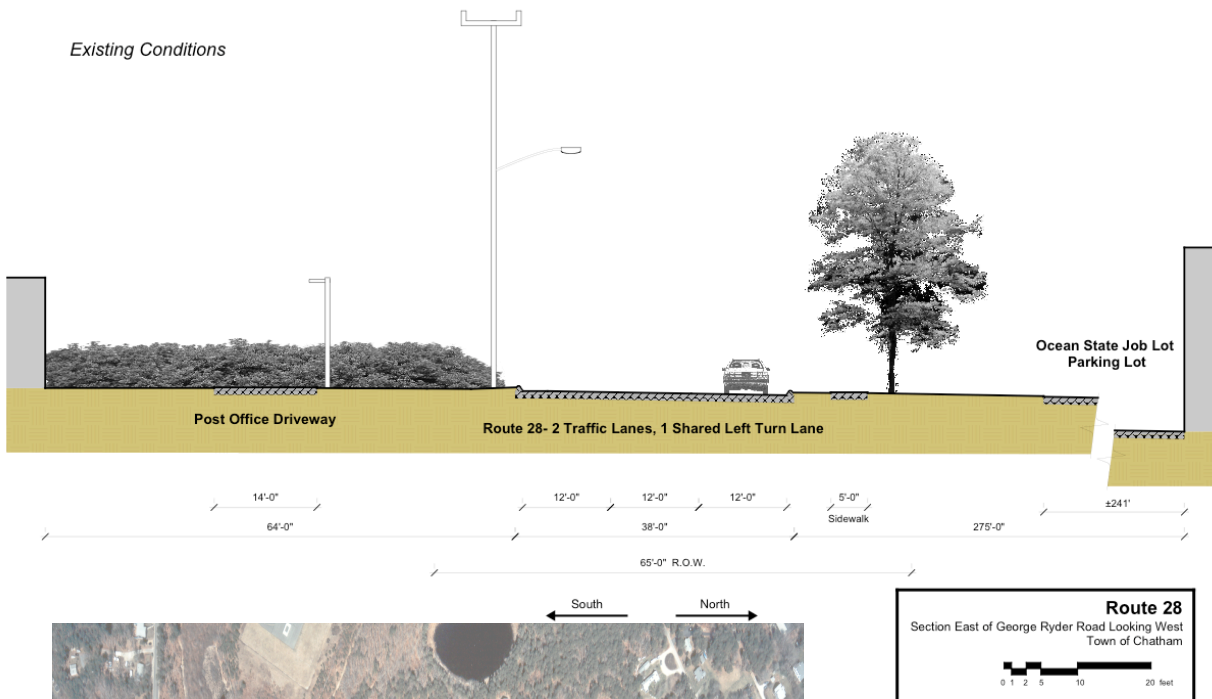
Roadway Type:

Route 28 is classified as a rural minor arterial highway, serving as the major spine for East-West traffic and commercial activity for the southern Cape. Bays and estuaries to the south of the road mandate predominantly North-South movement in those areas. To the North of the road the large parcel of the airport and a series of kettle ponds limit alternate travel routes. While George Ryder Road provides an alternate connection, it is a far more circuitous route without directional signage, and is primarily utilized by a light volume of local traffic.



Roadway Configuration:

This segment of Route 28 has a three lane cross section in a sixty-foot right of way. There is a single east bound travel lane, a single west bound travel lane, both of approximately fourteen feet in width of bituminous concrete, with a similarly sized center turning lane identified by striping and roadway markings. The margin of the road varies, being encroached on by sand where asphalt curbs are not present. Driveway aprons and curb cuts have been located to the convenience of abutting properties, and are commonly placed within seventy five feet (75') of intersections. Widths and functional requirements of the driveways are also highly variable, generally serving ample parking lots fronting businesses. Block dimensions are highly variable. There is a four foot wide (4') bituminous concrete sidewalk installed in the right of way to the north side of Route 28, separated from the roadway by a planting strip of variable width. Also within the right of way are utility poles and wiring, and roadway lighting of a 'cobra head' generic aluminum oval fixture on an arching mast arm type.



West Chatham Grant Aerial

Widened, 3-lane roadway only occurs in study area

Clear pattern of commercial development & pavement, bordered by housing, served by local streets

Recreation & Conservation resources to North & South of area



Existing Conditions

Intersection Drawings

George Ryder Road



Seaquanset Road



Barn Hill Road

Scale varies
From Town of Chatham GIS

Intersection Configuration:

George Ryder Road is the primary local intersection, with George Ryder Road meeting Route 28 at an acute angle from the north, and controlled by a stop sign on George Ryder Road. George Ryder Road, South of Route 28, is an offset intersection with a noticeable decline in roadway elevation. To the side of this intersection lies a major gas station with entrances near to the intersection, the largest commercial property of this sector with expansive parking lot on its frontage, and a post office located in a commercial center.

Sequanset Road is the center intersection of the study area, characterized by low traffic volumes and providing access to residential areas to the south and abutting commercial properties. Access from Sequanset to Rt. 28 is controlled by a stop sign.

Barn Hill Road is a nearly right angle intersection with a flashing yellow light on a traffic island to alert Route 28 traffic to turning vehicles. Turning movements from Barn Hill are controlled by a stop sign. The two lane road has minimal shoulders near the intersection, but multiple curb cuts for adjacent commercial properties. At the southern end of Barn Hill Road is a town landing much in demand by residents, and attracting a substantial amount of traffic, particularly with boat trailers that currently have inadequate parking availability.

None of the intersecting roads have sidewalks or curbs. Further along George Ryder Rd the bike trail extension runs alongside the roadway and is highly developed with bituminous concrete travel surface, signage, fencing, and other improvements.

Average Daily Traffic Flows

Route 28 has low to moderate traffic volumes through much of the year, generally rising over time in pace with other portions of the Cape. The Cape Cod Commission (CCC) has determined that Cape traffic volumes for the summer peak have risen 14.2 % between 1993 and 2003, or 1.33% per year. Chatham's Lower Cape region grew by nearly 15% in that decade. Cape traffic fluctuates greatly depending on the time of year, and with the day of the week. Winter traffic volumes can be one half, or less, those of summer peaks. As the Cape has transitioned to a more residential character the wintertime lows have become less pronounced, but are still dramatically reduced from the summer peaks.

Traffic volumes also vary greatly to reflect usage patterns of residents and visitors, most significantly coinciding with tourism peaks, and are greatest on the weekend, later in the week and later in the afternoon and early evening hours. Consequently, Monday mornings are likely to have the least traffic volumes, while later afternoons on Friday and Saturday are likely to receive the heaviest traffic volumes.

The Massachusetts Highway Department (MHD) observed an average annual daily total (AADT) of 14,200 vehicles per day on Rt. 28 east of Rt. 137 in a 2002 traffic count, and rising to 14,623 in 2003. 2002 Rt. 28 Cape traffic volumes peak at 40,500 per day in

Barnstable, and vary in Harwich between 7,400 and 10,700 per day. 2003 AADT counts of the Cape Cod Commission Traffic Counting Program identified 16,373 vehicles in the section east of George Ryder Rd, and 16,900 east of Barn Hill Rd. East and west bound traffic vary by several hundred vehicles per day, with west bound being the predominant movement. At Barn Hill Rd, the 2003 counts were conducted over two days in late July. Earlier traffic counts are most extensive at Barn Hill Rd, showing a gaining trend from AADTs of 12,885 in 1998, growing to 15,417 in 1999, then receding minimally to 15,324 in 2000, before reaching 16,900 in 2003. AADT volumes east of George Ryder Rd have also risen from 12,484 in 1999 to 16,373 in 2003, with east and west bound traffic being nearly evenly balanced. The two travel lanes of Rt. 28 continue to have adequate capacity for through traffic.

The study area section of Rt. 28 does have traffic volumes higher than other segments of Rt. 28 elsewhere in Chatham, which are higher than those of continuing easterly from Harwich. Rt. 137, George Ryder Road and Queen Anne Road all appear to contribute traffic to the study area roadway. The WCG study area therefore attracts traffic from within Chatham, building on regional flows, and also has a significant local generation factor from the neighborhoods nearby.

The primary contributor to congestion on Rt. 28 is the turning movement of vehicles, particularly left turns. George Ryder Road has the greatest turning volumes in the WCG study area with several hundred per hour entering George Ryder Rd, and hundreds more entering Rt. 28 eastbound. The turn across Rt. 28 traffic is more difficult and results in longer average delay for turning vehicles, and risk of collisions. Turning movements to and from Barn Hill Rd can be more problematic, even though the volumes are generally fewer. The intersection is less noticeable than George Ryder, and much of the turning summer traffic consists of boat and utility trailers which handicaps vehicles attempting to clear the intersection. The presence of an offset flashing yellow light at the intersection is universally acknowledged to be insufficient to prompt yielding behavior from oncoming traffic, particularly Rt. 28 east bound traffic entering from Barn Hill Rd can experience protracted delays. More troubling is potential delay to west bound Rt. 28 traffic being obstructed by the queuing of traffic awaiting the opportunity to turn left onto Barn Hill Rd.

The three lane cross section of the roadway in this area is unique within Chatham and is a primary component of the character of this area, lending a more open and expansive feel to this area. The lane greatly assists the organizing of traffic making left turns into area businesses abutting the road. The extent of the turning lane also leads to situations where head on collisions can occur, and where intersections can be blocked by traffic seeking to turn into a nearby driveway. Anecdotal information also points out that the turning lane may also be periodically used as a passing lane, adding additional hazards to its operational characteristics.

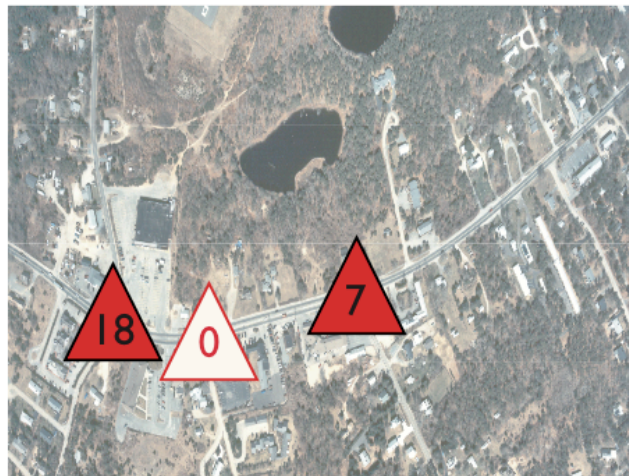
Roadway traffic volumes are generally acceptable for the capacity of the travel lanes, with the exception of the summer peaks, when congestion prevails. Roadway widening, adding lanes to accommodate peak demand is impractical, as it would simply shift traffic

volume to other portions of Chatham which are less able to accept and process those volumes. Roadway widening would also be costly and almost certainly require land takings, and would result in a significant change in roadway character and a loss of the rural, small town aspects currently prevailing along the road throughout Chatham.

Accidents & Safety

Between 1999 and 2001 nearly every intersection along Rt. 28 in Chatham was the scene of a vehicular accident, totaling 200 in all at 47 locations, with an average of 4.2 accidents per intersection. The intersection with George Ryder Rd accounted for 18 of those accidents, nearly 10% of the total and almost four times the average accident rate, with four of those registering a personal injury – 8% of all injuries. Barn Hill Road was the scene of 7 accidents over those two years accounting for less than 4% of the accident total, but with twice the accident rate as average, with none of those resulting in personal injury. Sequanset Road was not recorded as an accident site, making it a rarity. 27 accidents were not attributed to specific locations along Route 28, accounting for nearly 15% of total accidents, and there likely are other accidents which have not been reported. Happily, there were no fatalities among these accidents.

At both George Ryder Rd and Barn Hill Rd more than half of the accidents were angle collisions, indicating that they resulted during turning maneuvers. This attribution to turning accidents is clearest at George Ryder Rd. There, turning accidents are almost four times as prevalent as rear end collisions, while elsewhere along Rt. 28 turning and rear end collisions are relatively balanced. Fortunately, none of the five head on collisions recorded between 1999-2001 occurred in the WCG study area



George Ryder Road has the most accidents
14% – High sector proportion of entire Rt 28 total
Add'l 14% of accidents not keyed to intersection

Roadway Analysis:

This portion of Main Street was widened from the typical two lane roadway cross section that occurs elsewhere along the highway alignment, likely predicated on the traffic volumes generated by the now closed supermarket at the northeast corner of the George Ryder Road intersection. Lane width is also somewhat wider than that of other portions of Route 28 (14' v. 12'). At fourteen feet wide, it equals the width of an average interstate lane. The three lane cross section lengthens the distance, and therefore the time, needed for vehicles to complete turning maneuvers from side roads onto Main Street. Larger gaps in oncoming traffic are required for turning movements to be safely completed. The lack of roadway definition and focus in this segment leads to ambiguity and to poorly organized and defined turning and merging movements, increasing the likelihood of accidents and congestion. The wider cross section and lane widths also encourage off-peak vehicle speeds higher than the posted limit.



Rte 28 Looking West

The study area of Route 28 is generally level and flat, while following the mild changes of topography in the area. The George Ryder Road intersection is at one gentle bend, and there is a lesser bend easterly of Seaquanset Road. Near George Ryder Road there is some pronounced cross sectional slope to the roadway. George Ryder Road enters with a gentle slope downward; this slope continues in a pronounced manner to the south of Rt. 28 within the first one hundred feet of George Ryder Rd South. The Barn Hill Rd intersection is nearly level.

Sightlines are generally extensive and clear. George Ryder Rd South has visibility obscured by signage and hedges, reducing the margin for error at the intersection. The Barn Hill Rd intersection is also somewhat obscured by the light standard on the traffic island, and by the visibility of other vehicles parked at the Shop Ahoy Plaza.

Results of presentation to Planning Board – August 17, 2004

This evening meeting was scheduled, advertised and held as the primary agenda item of the Planning Board, and the hearing room was nearly full with interested residents. Analysis of existing conditions and discussion of the various options available to address the goals of the study and shortcomings of the roadway was made with a powerpoint presentation, and extensive discussion of these conditions and options followed. Major points resulting included:

Conservation Lands- Hennigan property moving forward under separate, parallel program for acquisition by the Town, for use as a nature reserve with trails and a small parking area, with little other development or site improvements. The WCG project can make some recommendations for parking, driveway access and signage.

Opportunities to incorporate the extension of the Mid-Cape Bike Trail- Considerable interest in the potential to provide an additional trail linkage to the Bike Trail to the east of the study area, utilizing several Town owned parcels to connect northward. The simple trail would be placed between two ponds on a narrow isthmus, reaching Rt. 28 near Weatherboard Lane.

Land takings not supported- Neither the Planning Board nor the public present supported any action that would require the taking of private property. Accomplishing the goals of the study within the existing right of way was strongly voiced.

Preferences to maintain the 3 lane cross section- Neither the Planning Board nor the public expressed any desire to remove the center turning lane, preferring to maintain the additional lane for its convenience value, and for its ability to better differentiate this district.

Need for sidewalks on both sides of road- Sidewalks on the southern side of Rt. 28 were considered a primary need and a high priority, with opportunities to benefit the businesses on that side of the road. Concerns about a sidewalk's relationship to the road and parking lots was raised, as was concern over the potential need to enlarge the right of way to accommodate a sidewalk in that area.

Cyclists need to use sidewalks as well a roadway- The three lane roadway cross section left too little room to place a bike lane to the side of the travel lane within the study area. Cyclists will either need to use the right hand margin of the roadway or be directed onto sidewalks. Sidewalk width and configuration becomes more critical, as it must be shared by pedestrians and cyclists of all abilities.

Support for entry islands and organization of turning movements- There was wide ranging support for the introduction of planted medians. Medians were preferred at the endpoints of the study area, terminating the turning lane and serving as gateway markers to the district. Concern was voiced that the medians not provide a traffic hazard, nor that they be so thickly planted that they reduce needed visibility.

Support for narrowing roadway geometry, reducing lane widths- The desire to reduce off peak vehicle speeds and maximize the Right-of-Way (ROW) needed for sidewalks, plantings and other amenities, led to agreement on lane width reductions to eleven feet (11'). Similarly, the desire to provide better legibility and organization to intersections, and to improve pedestrian crossings led to agreement on the redesign of intersections to reduce their area, reduce curb radii, and reorient the throats of intersecting roads.

Need to ease turning movements to/from Barn Hill Road- One of the highest priorities was to minimize congestion and accident hazards at that intersection. The flashing yellow light was generally seen as ineffective.

Desire to reinforce rural character and limit strip commercial appearance and function- Concern was raised over the unappealing physical environment of the WCG study area, in comparison with the town center and other portions of Rt. 28. Interest in halting and reversing this erosion of community character was widely supported. Establishment of a village character with strong commercial aspects was supported. Interest was also voiced in upper story building uses, mixed use and reduction of visible parking lot areas.

Need for a safe, inviting connection on George Ryder Rd for users of the bike trail- The bike trail extension is widely supported and seen as an important civic and cultural amenity. Concern for the comfort, enjoyment and safety of bike trail patrons was widely supported. Extension of the characteristics of the bike trail infrastructure as it proceeds along George Ryder Rd was recommended for extension on to Rt. 28. Concern was voiced for pedestrians and cyclists to be able to use both sides of George Ryder Rd, on road for cyclists, and on sidewalks or paths for both cyclists and pedestrians. Informational and directional signage was seen to be critical to the success of this link, as well as the need for alerting signage for motorists.

Significance of the Post Office- The post office to the southeast of George Ryder Rd was noted as being a centerpiece of W. Chatham life. The movement of residents checking their mailboxes was identified as a contributor to traffic and congestion, noting the difficulties of entering and crossing traffic in that location.



Meeting with Cape Cod Commission – February 1, 2005

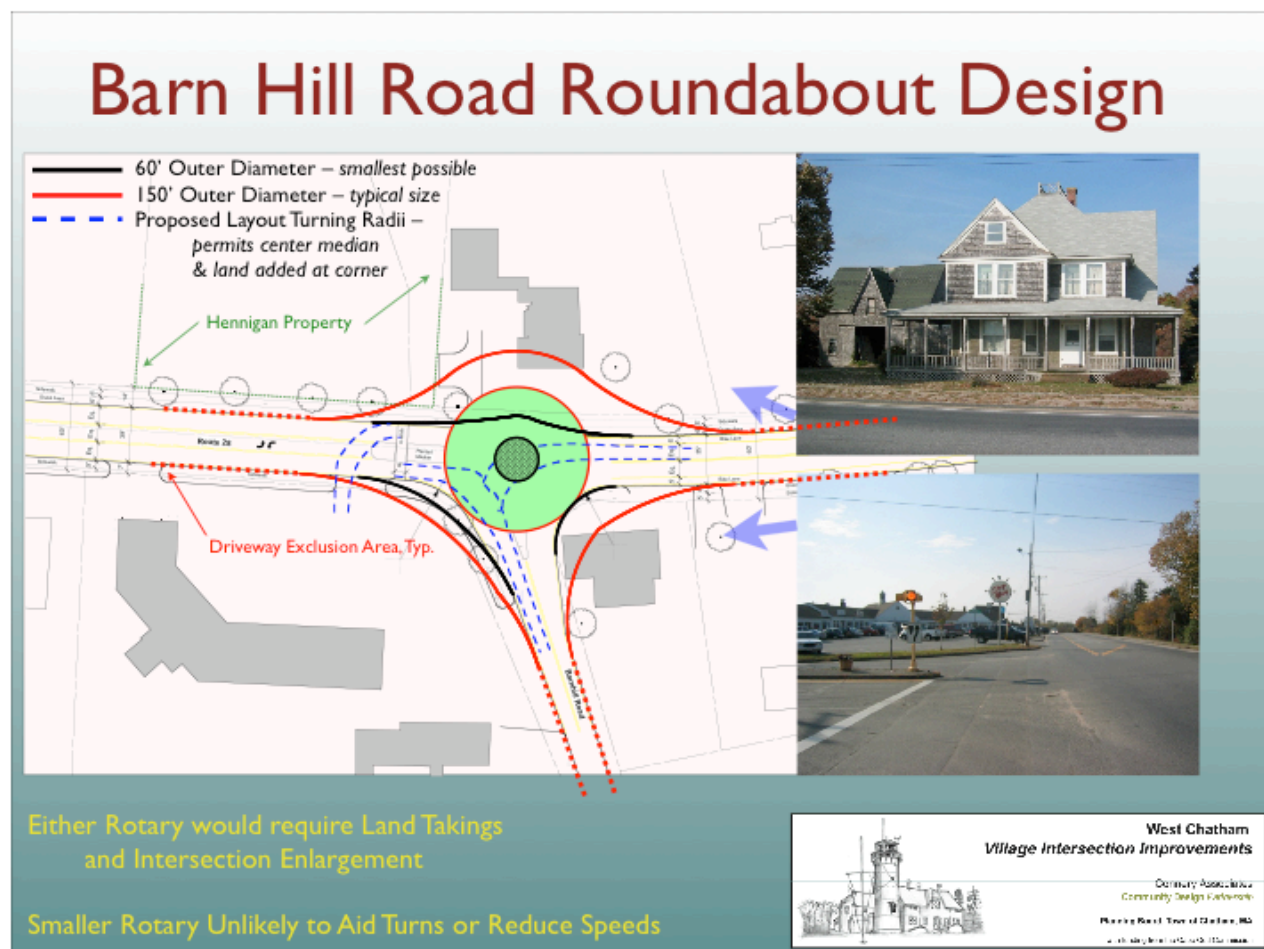
The consultants and Planning Department staff met with representatives of the Cape Cod Commission to discuss project status and the development of the design. Major points resulting from that meeting include:

Interest in exploring roundabout option for Barn Hill Road- Small traffic circles, or roundabouts, are often able to permit roadways to process many complicated turning and through vehicle movements without the need for traffic signals or other control devices.

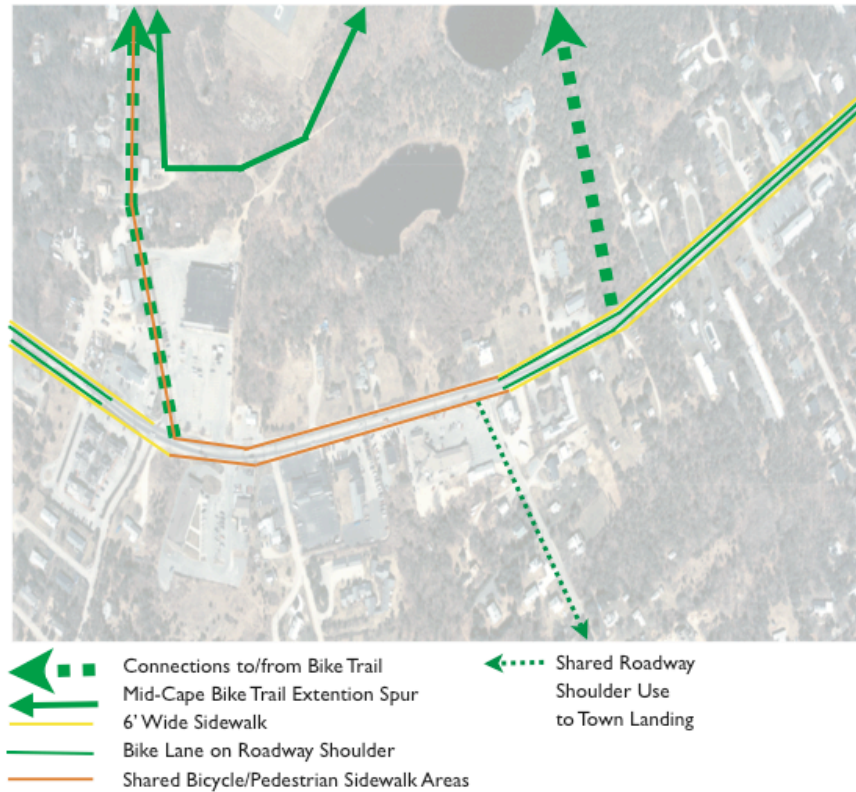
Agreement that roadway function has minor regional emphasis in Chatham- Most traffic and turning movements are primarily local in nature, with regional traffic primarily making use of other roads and highways.

Connections to bike trail critical- Reinforcement of the bike trail extension and provision of additional amenities to users was seen to be important to the trail meeting its full potential. The opportunity to provide an additional trail link further to the east was also seen as highly beneficial, and giving the WCG commercial center greater importance

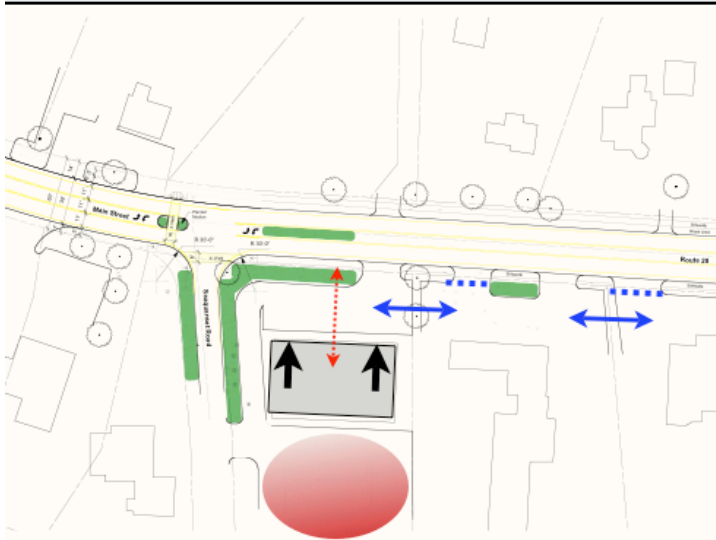
Traffic calming aspects need emphasis- Aggressive design elements to manage traffic flow, moderate off-peak vehicle speeds, reduce accidents and severity, and to afford greater priority to pedestrians and bicyclists, have a high level of importance.



Pedestrian & Bicycle Circulation & Trail Connections



Seaquanset Road Improvements



- Continuous Turning Lane
- ADA Protected X-Walk
- Marked ADA X-ings
- Sidewalks Continuous & Enlarged on each side
- Planted Median as permitted by Curb Cuts
- Opportunities to Narrow & Eliminate Curb Cuts, Enlarge Planted Areas

Potential to Increase Parking with Narrowed/Eliminated Drives

Opportunities to Link Parking Circulation Off-Street

New Building Closer to Road, Most Parking at Rear, Simplified Circulation & Enhanced Plantings



Business community presentation – March 19, 2005

A Saturday morning meeting was advertised and conducted to focus on the needs and outlook of the business community, with full public participation. Analysis and design recommendations were presented via powerpoint, and a wide ranging discussion ensued over various approaches and details. In the course of this meeting, many of the overall and specific design recommendations presented were endorsed, and a number of alternatives and additional recommendations were made and offered for further study.

Primary results of this meeting included:

No support for Route 28 land takings- Roundabout at Barn Hill Rd would primarily affect the owner of a handsome, older residence to the north of the intersection. While the smallest design would require a minimal land taking, a more typically sized roundabout would require demolition of a portion of the house itself.

Opportunity to create an E-W link from Barn Hill Rd to the Post Office should be examined- Businesses supported the extension of an accessway to the southerly side of the Shop Ahoy Plaza to service the needs of adjoining businesses, and to reduce the necessity to provide for more complicated turning movements of semi trailers (WB-50 design vehicles). Discussion identified a potential to extend or enlarge this to provide a link to the commercial plaza incorporating the post office. Creating this link would remove a portion of the traffic on this segment of Rt. 28, eliminate the need for vehicles to make two left turns in close succession, and provide an alternate route for general circulation, helping to relieve some of the pressure on Main Street. Implementation might require land takings, the acquisition of easements, or other action in order to create this link. This alignment was not confirmed as available, but the level of endorsement recommends it for further study and advancement.

Driveway reductions and shared parking supported- Participants expressed a high level of support to make adjustments to parking lots and driveways to benefit the district and commercial needs, including relocation, removal and width reductions for curb cuts and driveway aprons. Reductions in the extent of individual parking areas and relocation of parking to the sides and rear of properties (as possible) was supported. Establishing a system of district shared parking, permitting business patrons to leave their car in one location while they shop among several businesses in the WCG area was also supported by businesses and residents. Potential to reduce minimum parking ratios might also be pursued.

Additional, widened sidewalks, plantings and amenities supported- Ample sidewalks for the south side of Main Street were seen to be essential. Street furniture (such as benches and trash receptacles) and amenities for pedestrians were supported, both on public and private lands. Potential for conflicts between trees and utility wires was raised and the need to avoid overly aggressive and unsightly pruning. A higher level of street tree and ornamental plantings and maintenance was supported in the public ROW and on private property.

Improved lighting, informational and directional signage supported- Revised roadway lighting to provide a distinctive neighborhood identity and lessen highway strip character was supported. Interest in lighting for pedestrian needs and scale was expressed. Interest in minimizing the unsightly intrusion of utility poles and wires was also raised.

Barn Hill access and Boat Trailer parking extremely important- Need for a traffic signal at Barn Hill Rd recommended. High level of concern that the difficulty and safety aspects of the Barn Hill Rd intersection diminishes the attractiveness of the area and reduces its appeal to shoppers.

Mixed use development in WCG area and housing near commercial area supported- Qualified support was given to the identification of this district as appropriate for mixed use, including the provision of housing, housing above retail, and denser housing levels in adjoining neighborhoods. Additional housing focused on this commercial district can serve to bolster businesses and encourage the establishment of an array of businesses oriented to the needs of residents. Concern was raised that housing not be permitted to build at any height, and for the wastewater burdens that additional housing would represent.

Planted medians supported- District entry and intersection medians to better establish district identity, enhance and protect pedestrian crossings, organize and increase the safety of turning movements was supported at the three intersections within the district.

Concern that the commercial mix of the district has been progressing to primarily restaurant uses- Few shops and offices remain from a more diversified, prior mix. Possibly continued effect of the closing of the supermarket, or possibly reflecting a larger transformation of the economy and greater mobility among residents and visitors.

Accommodations for bus service between Hyannis and Orleans needed- Opportunities for bus shelters, signage and posted schedules to improve conditions for bus patrons, and to give greater visibility to bus service as a viable transportation mode

Support for buildings orienting closer to roadway- Support was voiced for reducing building setbacks to permit buildings to be placed closer to Main Street, and breaking up parking areas, permitting more parking to be placed to the rear of businesses.

Need for better marking signage, wayfinding and directional- Signage that identifies the district, provides directional guidance to other local and regional destinations, identifies nearby resources and amenities, and provides information to better organize and manage traffic operation should be placed. Signage to alert motorists to the presence of pedestrians and bicyclists both entering and in the roadway should be posted regularly.

Need for businesses to improve properties and appearance- Businesses can take immediate and longer term steps to improve the appearance and functionality of their properties. Site cleanliness and repair should be a baseline for further improvements. Improvements to building facades and rooflines can establish a better, more communicative neighborhood character and enhance business visibility, enabling stand alone signage to be minimized. In conjunction with the alteration and elimination of driveways, parking lots can be restriped for greater efficiency and ease of maneuvering. Unused areas can be converted into planted areas. Pedestrian amenities, such as benches, shading, telephones, trash receptacles, bike racks, and the like will improve enjoyment and functionality for all users.

Potential for roundabout at George Ryder Road could be explored- Further analysis discovered that a roundabout could not readily accommodate the traffic movements needed without takings of private property and significant reordering of business uses on abutting parcels. Roadway alignments also not ideal to incorporate into a roundabout; benefits of roundabout operation unlikely to be realized.

Interest in further perspective, 3D and rendered studies for evaluation of options- Participants felt that more fully elaborated drawings and perspective studies would provide greater ease of understanding the benefits and implications of the recommendations of the study.

Support for peak time traffic signal at Barn Hill- The difficulty of turning movements at Barn Hill Rd, accident hazards and contributions to congestion led participants to endorse solutions which could improve the functioning of the intersection. The recommendation is to implement a stepped series of signalization upgrades, in addition to geometric improvements, to most rapidly and economically resolve the shortcomings of the intersection.

The first step would be to post signage of Rt. 28 to alert oncoming traffic to the intersection and request that they yield to turning traffic. A second level action, potentially taken in concert with yield signage, would relocate the flashing yellow light to an island mounted mast arm or a high mounted catenary cable, orienting the flasher over the roadway centerline, and thus becoming more visible and authoritative.

If those steps prove insufficient to produce the needed improvement in traffic flow, the intersection should receive a traffic light, possibly with turn phasing. A traffic signal should be controlled to operate seasonally, reverting to flashing yellow operation in the off peak seasons. Operation of the light might also be adjusted so that the signal sequencing functions only during the peak hours of the day, or it may also be controlled via loop detectors. Loop Detectors would only be able to be installed on Barn Hill Road approach, as alignment and ROW precludes a turning lane(s) on Main Street.

Interest in additional roadside trailer parking on Barn Hill- Utilization of the town landing accessed via Barn Hill Rd is hampered by the lack of available parking at the landing and elsewhere along the roads leading to it. Interest was expressed that the

Barn Hill Rd ROW be examined to determine if it might be suitable for day use trailer parking. It was not possible to analyze and determine Barn Hill's suitability within the scope of this study, but it might prove advantageous to revisit this option at a future time.

Winter snow clearance illustrates amount of excess roadway generally- Site visit and photography conducted during the winter revealed that the full paved roadway is not required for adequate levels of operation in the off peak. Nearly one half of the roadway was not plowed, due to multiple severe snowfalls over the past winter. Accumulation of sand in the center turning lane also disclosed that it has unneeded capacity in the off peak.

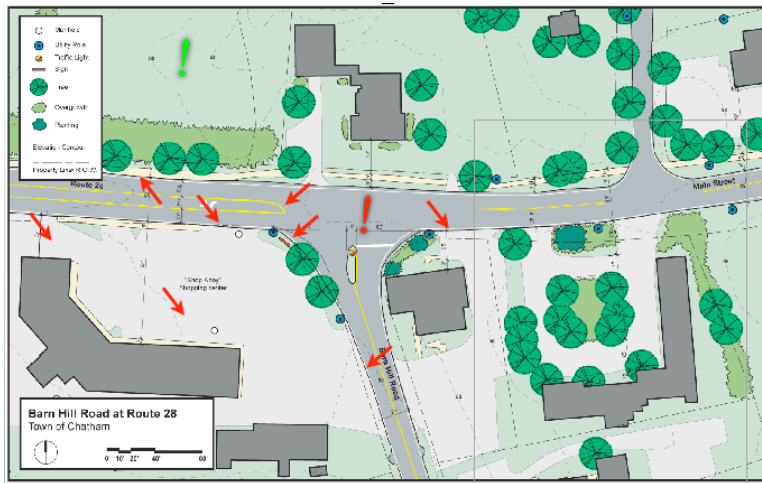
Summertime peak volumes essentially impossible to accommodate: Peak demand exceeds roadway capacity.

Lack of willingness to provide additional roadway width- Increasing roadway capacity would minimally require enlarging the roadway to a continuous 3 lane cross section

Local nature of traffic destination- Most of the traffic on this portion of Rt. 28 is destined for locations within Chatham, and most of that to destinations in southerly neighborhoods of Chatham.

Inability of destination areas to accept additional traffic volumes- Most other neighborhoods of Chatham do not have the roadway capacity, intersection design, or the neighborhoods' desire to accept additional traffic volumes. Increasing the throughput of Rt. 28 substantially would only shift the burden and increase the aggravation created by existing congestion on Rt. 28.

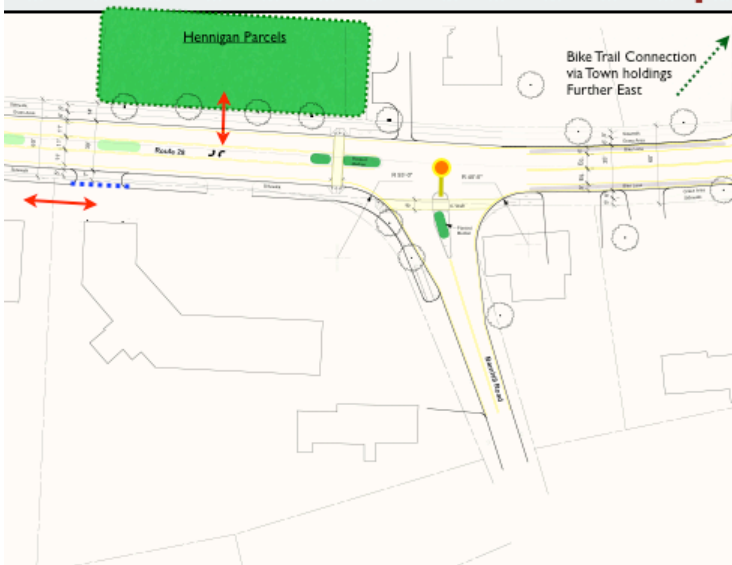
Traffic metering function of Main Street is a critical service provided- By maintaining the capacity of the primary arterial serving the southerly neighborhoods of Chatham at a reasonable level, the highway is able to serve as a buffer to maintain neighborhood character. Should the quality of life in the neighborhoods become overly degraded by increased traffic volumes, the uniqueness and desirability of Chatham would be significantly lessened.



! – High Accident Location

Arrows – point to dangerous/substandard turning locations, poor pedestrian crossing areas, circulation problems at (or in) parking lots

Barn Hill Road Improvements



- Upgraded Signalization w. Turn Prioritization
- Continuous Turning Lane
- Planted Median as Permitted by Curb Cuts
- ADA Protected X-Walks
- Bike Lanes Possible, at Eastern Approach, w. R.O.W. Widening req'd
- Hennigan Conservation Land

Potential to Increase Parking with Narrowed/Eliminated Drives

Opportunities to Link Parking Circulation Off-Street

Opportunity to Maximize Parking Efficiency



Presentation to Board of Selectmen – May 24, 2005

A brief update of project status was made to the Board of Selectmen at an afternoon meeting on May 24, recapping project progress and reviewing the major elements and recommendations of the plan. Selectmen made several comments and observations regarding the plan, and asked a series of questions regarding specific elements and the factors and choices involved. The meeting was well attended by the public, several of whom made comments and asked questions regarding various aspects of the project.

Major comments included:

Creation of a neighborhood center is very important. There is a long range planning aspect to this, incorporating goals of the Comprehensive Plan, to give better definition to the district and to benefit the surrounding neighborhoods.

The shared parking concept needs to be emphasized and pursued. The ability to leverage all of the available parking for fuller use of the district and to encourage single trips visiting several merchants is highly desirable from the standpoint of congestion and accident avoidance, as well as improving the overall health of businesses.

Concern that the recommendations of the project may be out of proportion to the problems and the needs of the district and neighborhoods. Potential for a less expansive and holistic approach to the district may be more appropriate. Concern that the traffic issues being addressed are generally limited to the summer tourism peak, and not reflective of year round conditions.

Question as to whether the Post Office could make residential deliveries, eliminating the need for residents to visit their mail boxes daily. Post Office has not been contacted to explore that opportunity. [Post Offices are often a centerpiece of village life, as a clearinghouse where people meet informally to exchange information and establish and maintain social contacts. In that sense, the lack of residential delivery enhances community bonds and is an attribute of the district.]

Is full signalization called for at Barn Hill Rd? Could the flashing yellow light be relocated to a more central and visible location to Rt. 28? Can sensor loops be installed to minimize unnecessary delay to through traffic when turns are not required?

Additional public parking would assist the business climate. Shared use of existing parking areas will increase the ability of existing parking to meet demand. [Observation that the parking lot of the Ocean State Job Lot site is rarely, if ever, fully occupied.]

Signage for Bike Paths has been recommended by the Town's Bicycle Committee, and can be extended down George Ryder Rd and employed in other locations and along Rt. 28. Consistency and legibility of signage is a great benefit to wayfinding, helping to minimize confusion.

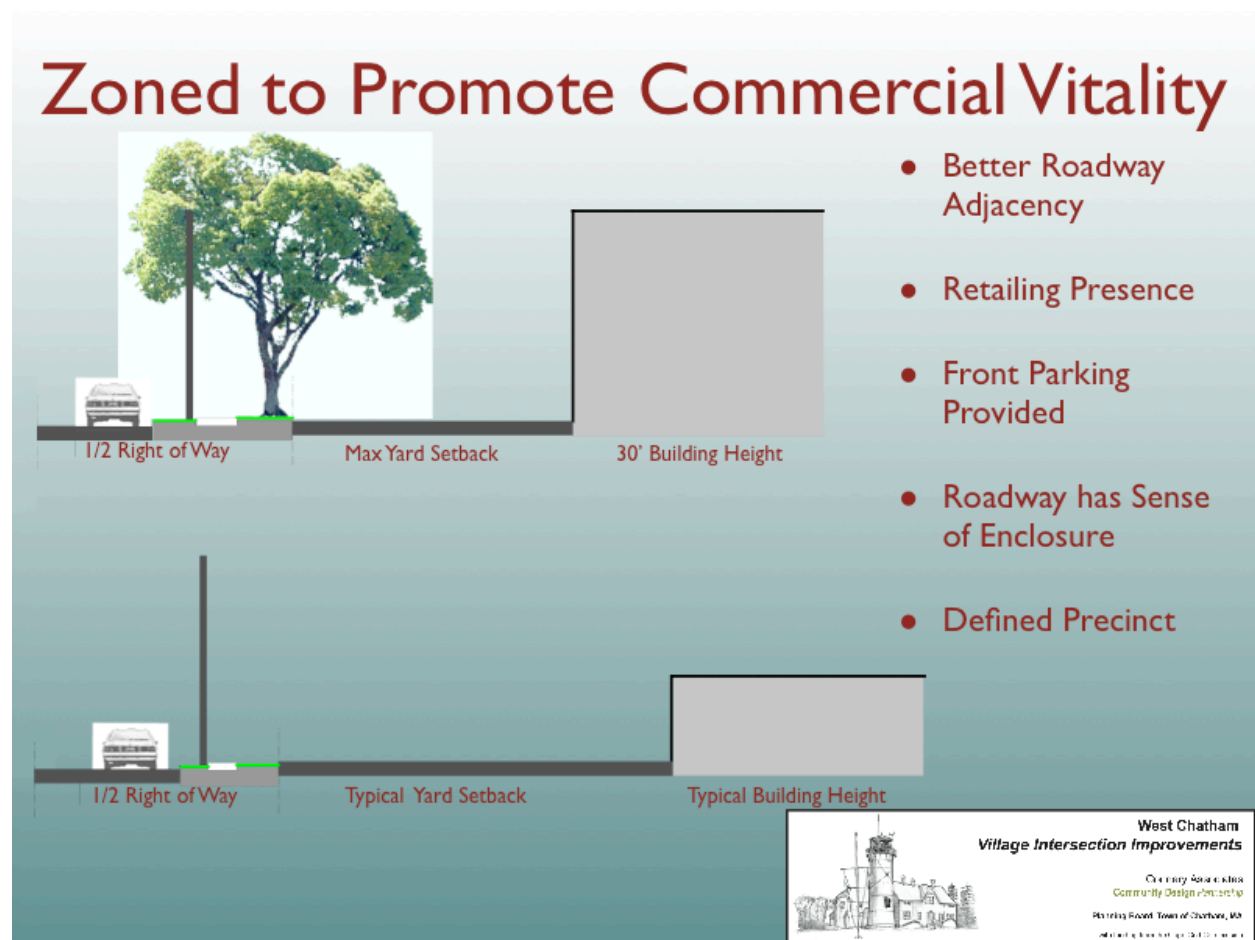
Utility lines in this district are unsightly and should be buried below grade. Utility line relocation could have a significant impact on tree planting and streetscape

recommendations. Burying utility lines could allow additional street tree plantings and greater flexibility in the placement of driveways and other amenities.

Can the Historic Business District Committee (HBDC) play a role in improving the design and appearance of buildings and properties? Yes, the HBDC has an important role to play, and this is one of its chartering purposes.

Does the presence of the airport and its flight paths limit building heights? Runway orientation is somewhat to the west of the intersection of George Ryder Rd and Rt. 28, so any influence on building heights by air navigation and glidepath requirements would be minimal within the study area. The height limitation of current and proposed zoning for the area will be far lower and more stringent than the requirements of the FAA. It is unlikely that the town would ever need to consider, much less permit, a building that would approach the navigational envelope of the airport flight paths, in the study area.

Trucks are currently observed using the turning lane as a passing lane. Planted medians would reduce or eliminate that behavior and better organize traffic flow.



Project Recommendations:

Route 28 Roadway

Reduce Lane Widths to 11’- Narrowing lanes will help reduce off peak vehicle speeds, encourage greater attentiveness and driver discipline, and permit approximately 9 additional feet of width to be utilized for sidewalk and planting areas. This area can be apportioned as needed to either side of the roadway to maintain roadway alignment, provide adequate space for sidewalks and plantings, and to assist the improved design of intersections.

Turning Lane- The existing turning lane should be preserved, at 11’ in width. The lane should be demarcated with a broken yellow line to either side. Pavement marking should be installed to alert drivers to be aware of oncoming traffic in the turning lane. Signage should alert drivers that the turning lane is only to be used for turns.

Speed Limit Reduced- In view of the geometric modifications being recommended for the roadway and intersections it is appropriate to review posted speeds and to revise them downward to reflect the movement of the design away from a highway and towards a country road. Speed limits should reinforce the physical and perceptual configuration of the road and environs and reflect its design speed, and not be artificially lowered when other elements have not been modified. Lower speed limits will have their primary benefits at off-peak and uncongested times, although moderate speeds can enhance turning and merging operations and result in the smooth processing of the traffic flow, delaying the onset of congestion. Lowering the Rt. 28 speed limit to 30 mph should be considered for implementation in the WCG area.

Lower speeds will reduce the likelihood and severity of accidents and injuries, make left turns easier, enable cyclists to more readily share the roadway, and assist pedestrians in crossing the road. Lower speeds also help motorists be more aware of the roadside, noticing the shops and signage. Drivers can then safely decide to enter and visit those businesses, rather than having sped by them before a decision could be made. Lower speeds will assist the establishment of the desired neighborhood commercial district character.

Create Center Lane Medians- Place planted medians in the center lane alignment to mark and distinguish the district at intersections. Median locations and sizes are shown in the design drawings, varying at each intersection to provide for the various turning movements to and from roads and driveways. The medians at George Ryder Rd and Barn Hill Rd should contain ornamental district entry signage. Plantings in the median can contain trees, shrubbery, flowers and grasses, but care should be given that needed sightlines are not obscured. Medians might contain lighting elements. Medians should have a curbing or masonry and be able to endure and deflect occasional vehicle impacts. Medians should be gently mounded to give sufficient visual prominence, to protect plantings from roadway salts, and to deflect vehicular impact. Medians should

be designed to incorporate at-grade, handicapped accessible pedestrian crossings and refuges, with motorist alert signage to yield right of way to pedestrians.

Bike Lane/Signage- The roadway margin should receive as much runoff area as it can accommodate, up to four feet wide, in order to provide informal accommodation for bicyclists using the roadway. Generally, there will not be sufficient area available in this area to provide full bike lanes, and other demands for the space will make it confusing and ineffective to provide a widely varying margin. Roadway markings and alert signage with bicycle icons (see graphics) should be placed to notify motorists to expect cyclists in the roadway in this area, as well as using the sidewalks and apt to cross the roadway at intersections. Alert signage will be appropriate in the future if formal bicycle lanes are established in other portions of Rt. 28, along the two lane cross section.

Pedestrian Crossings- Pedestrian crossings should be uniformly placed across all legs of every intersection. Crossings should be modified only as geometric alignment and driveways, which interfere with placement, permit. Pedestrian crossings should be a minimum of 8' wide, and clearly marked with parallel white zebra stripes of 12" width at 4' intervals, aligned with the stripes falling outside of tire placements. Other striping techniques may also be acceptable. Paint or thermoplastic materials should incorporate reflective components for night time visibility.

Pedestrian crossings should be preceded by roadway alert markings and roadside alert signage. Alert signage should incorporate the admonition that it is state law to yield to pedestrians in marked crossings. Additional alert mechanisms such as crosswalk signalization, in-roadway marking lights, hand-held flags, and other apparatus is not warranted at this time. As the district develops and pedestrian usage becomes more prevalent, and/or motorist behavior does not permit safe roadways crossings, then additional control measures may become necessary.

Curbing and Driveway Aprons- A defined edge, raised curb should be established consistently along the edge of the roadway, with breaks for handicapped ramps and driveways. A granite curb, whether vertical or angled is preferred over cobbles. Asphalt or concrete curbing might also be placed.

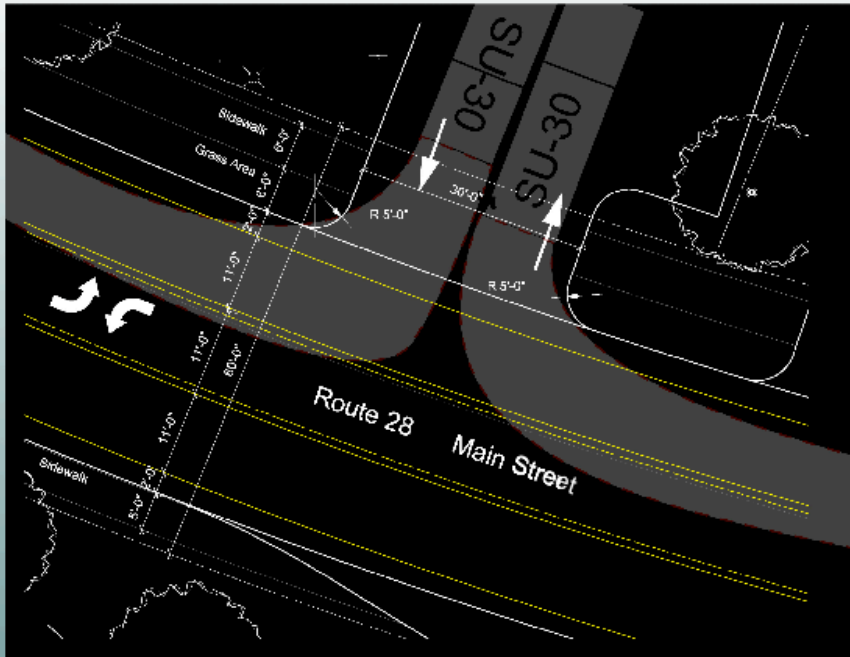
Placement of new curbing provides the opportunity to modify the placement, number and width of driveway openings. Driveways should be eliminated if possible within 75' of intersections. Efforts should be made to work with property owners to determine if driveways can be shared, reducing the overall number, and to provide informal circulation between adjacent properties.

Driveway widths should be sized to reflect commonly anticipated use, not maximum conditions. If there is more than one driveway for a given property, then each driveway should be for one-way usage, and designed around minimum turning movements. Where possible, existing driveway widths should be minimized or eliminated. Drives should be able to accommodate the largest service vehicles commonly serving that property. Design drawings indicate some of the reductions that are possible, while still

accommodating all users, but need to be finalized and adjusted in consultation with property owners.


Driveway aprons should rise up to meet the elevation of the sidewalk and provide a clear demarcation between roadway and parking area. Sidewalks should never be interrupted by a level change at a driveway. Driveway apron elevation changes also serve as informal speed humps to encourage moderate speeds within parking lots.

Driveways Optimized for Use



- Organize Flow
- Prevent Confusion
- Entry Definition Increases Order
- Improve Sidewalks & Plantings
- Durable Curbing
- Opportunity for Improved Signage & Lighting

Driveway Sized & Tailored for Each Business & Need
Narrower Lanes: Room for Bikes & better Sidewalks



Roadway Drainage- No alterations to existing roadway superelevations are being recommended (with the exception of George Ryder Rd South) and the narrowed lanes would be restriped closer to the center crest of roadway crown. Therefore, there should be no reduction in the ability of the road to drain stormwater or to experience increased ponding. Installation of curbing may reduce the ability of the sandy verge to accept stormwater sheet flow or to recharge water to the soil. It may be appropriate to install catch basins with grit and oil separators and trench or french drains (subgrade chambers of crushed stone) for interception and recharge, as part of the sidewalk and curb construction efforts.

Sidewalks- The existing sidewalk along the northern side of the roadway should be expanded to six feet in width. A six foot wide sidewalk should be constructed to the southerly side of Rt. 28, separated from the roadway by a variable width planting strip, measuring a minimum of four feet wide. Sidewalk surface should be smooth and well drained to provide for all modes and abilities of user. Continued use of bituminous concrete is acceptable. Well compacted stone dust can be used and might lend a more rural character to the sidewalk pathway. Future consideration of the potential to upgrade the pavement to concrete, or to employ ornamental materials and patterns could be considered, particularly as the neighborhood center develops its identity.

Alert signage should be provided so that pedestrians are aware that bicycles can be expected on the sidewalk, and to encourage courteous behavior by cyclists. Directional signage should be placed for sidewalk users at Barn Hill Rd and George Ryder Rd to assist wayfinding to the bike trail. Informational signage can also alert sidewalk users to the Hennigan property conservation lands. Distance markers to locations of interest can also be placed to encourage pedestrian activity.



Encouraging walking as a substitute and supplement to driving can provide a significant reduction to local traffic volumes and turning movements – potentially representing the difference between acceptable traffic levels and congestion. Pedestrian resources can certainly be amply provided for a fraction of the cost of an additional travel lane. Walking also represents an opportunity to greatly improve public health through reductions in obesity and heart disease, having the additional benefit of reducing health expenditures while improving quality of life.

Plantings- Attractive, varied and robust plantings of native species should be coordinated to give appeal and distinction to this district. Plantings along the roadside are important to generate a sense of place and enclosure to motorists, and to encourage lower travel speeds. Preference should be given to flowering species and those with intriguing color, habit, texture and other qualities, in all seasons of the year. Ease of maintenance, longevity, salt tolerance and the ability to withstand harsh and arid conditions should be selected characteristics.

Roadside tree species should be selected to provide a tall trunk with overarching branches. Shade trees should be specified with a 3" minimum caliper, and smaller trees selected that are above 1 ½" caliper. Lower limbs should be trimmed to enable a clear field of vision by motorists to adjacent buildings and their signage. Trees in medians can be smaller, more ornamental varieties. Shrubbery and ornamental grasses should be similarly considered, and maintained, so that their height does not obscure businesses, oncoming or turning traffic, or other potential hazards.

Bus Stop- High quality, durable bus shelters incorporating a seat, wind block glazing, lighting, signage and schedule should be placed to the rear of the sidewalk in the WCG area. Agreements should be put into place so the shelter is regularly cleaned and maintained.

Lighting & Utilities- Study and consideration should be given to replacing existing roadway lighting with more efficient and attractive 'Dark Skies' compliant side and upward light-scatter reducing fixtures, with metal halide or LED lamping. Roadway illumination should be calibrated in line with Connecticut energy conservation standards, which provide for more even lighting of the roadway, less light scatter, and lower energy usage. Height of lamp heads should be lowered and the spacing of standards reduced to provide a more intimate character to the roadway while maintaining adequate and attractive lighting levels. Lighting should be equipped with photo sensor switching. Study and consideration should be given to installation of pedestrian scaled and oriented sidewalk lighting.

Relighting this section of roadway provides the opportunity to consider and rationalize the placement of utility wiring in the public way. Public comments have often remarked on the unsightliness of the tangle of overhead wiring along this section of Main Street. The wiring is more visible due to the dearth of mature street trees, aggressive tree pruning, and the openness of the three lane cross section and extensive parking lots. Future needs suggest that more cabling will be required in the future, leading to a more cluttered intrusion on the open sky. The ideal solution would be to establish underground trenching for wiring upgrades and placement as lighting is upgraded and existing utility poles removed.

Underground wiring is protected from the elements and can last far longer without failure and has less susceptibility to weather related outages. Underground electrical cables are also more conserving of electricity, having lower levels of loss and voltage decay. These advantages can help to amortize the generally higher costs of underground placement, and the additional difficulties of accessing and servicing buried cables. Thoughtful organization of runs, placement of pull boxes and other apparatus can ease maintenance issues and reduce the need to regularly excavate and patch in order to service utility lines.

Underground placement of utilities is generally more expensive than wiring from poles, explaining its prevalence, and burying cables is often strenuously resisted by utilities unless coupled with other exigencies. In the absence of an agreement to submerge the

cables, it may be possible to encourage the reorganization of existing and new cables along utility poles to be less intrusive and unsightly. Cables can be organized to be placed more closely, for unneeded and superceded cabling to be removed, for cables to be hung parallel to each other, and for roadway crossings and diagonal alignments of cables to be minimized and better organized. Though far less satisfactory than burying of utilities, improved cable management can reduce the objectionable nature of the cabling currently in the district.

Street Furniture & Amenities- Pedestrians need more than sidewalks to be provided with a credible, dignified alternative to automobiles. Elements which can contribute greatly to the district and the quality of the pedestrian experience include: trash cans, seating, directional and informational signage, water fountains, rest rooms, dog sanitation stations, artwork and sculpture. Benches should preferably be shaded by trees or awnings. Many of these elements will provide greater value and definition to the district by being coordinated and having similar materials, style, color or appearance. Locally sourced and fabricated pieces can increase district character and give added distinction, greatly improving on generic and commonplace fixtures.

Trash barrels should be located frequently; at every other business or every 200' at a minimum, while there may only be a need for one or two benches per block. Coordination with businesses for the provision, placement and maintenance of street furniture, including the emptying of trash barrels, should be pursued aggressively. It is not necessary for all street furniture to be in the public right of way, and many businesses might benefit from expanding the amount and quality of these amenities as a way to attract and satisfy their clientele. Street furniture might be sponsored or adopted by businesses or organizations as a means to defray the costs of purchase or servicing, and become a source of pride for the community.



broad expanse of the Ocean State Job Lot parking lot and driveway

Parking Lots- Parking lots in this district are generally too large and massed entirely to the front of businesses, forcing buildings to the rear of properties. Parking areas should be broken up with substantial plantings that provide opportunities for the filtering and recharge of stormwater to the water table. Parking areas should be encouraged to be placed at the sides and rear of properties, permitting buildings to be built or expanded

closer to the roadway. Room for one or two ranks of short term parking at the store front should be maintained for convenience and to signal the availability of parking to motorists. Parking lots should be configured as possible to permit the low speed circulation of vehicles from one property to those adjacent reducing the need to enter and exit Rt. 28 when on errands within the WCG area.

Parking lots should have their layouts more closely examined and clearly marked to make more efficient use of their sites and to permit autos and delivery vehicles to circulate with less difficulty. Employees should not park near the roadway, preserving those spaces for patrons. Each building should provide at least one sturdy bike rack near its primary entrance.

Signage- Chatham should work with businesses to find ways to upgrade sign quality and reduce the prevalence of generic merchant signage, crafting a unique and attractive district identity. Size of signage should be able to be reduced as the district, signs and buildings become more distinctive and communicative.

Buildings- Existing buildings along the WCG study area are mainly unremarkable, small and undistinguished, and set too far back from the roadway to make a meaningful impression on motorists and patrons. Newly constructed buildings, and additions and renovations to existing buildings should be strongly encouraged to be placed nearer to the roadway and designed to be more prominent, handsome, finely detailed, and memorable. Buildings and their landscaping should provide the bulk of the advertising and inducement to shoppers and patrons. Taller facades, with upper stories, prominent pitched roofs, distinctive large-scaled detailing, handsome and durable materials, attractive colors can all provide greater recognition and retention than free standing signs. Business signage can also be integrated into buildings with great success, as can canopies and arcades, flags and banners, and other animating devices.



Larger building masses can also sustain additional uses, such as housing or offices on upper floors. Additional occupants give rise to additional activity, and an active site encourages additional commerce. The recommendations of this study are intended to mesh with the changes being studied for adoption to the zoning code. Businesses

should study their facilities to identify and implement improvements to provide handicapped accessibility.

Comments by the public during the WCG study were strongly supportive of alterations to buildings to enhance their traditional Cape Cod styles and characteristics. Those characteristics can be summarized as steeply pitched gable or salt box roof lines with asphalt or cedar shingles, shingle or clapboard siding, minimal overhangs and limited detailing and trim work, building masses meeting the ground with minimal foundations and exposed masonry, and mullioned windows. Such building masses are often articulated with advancing and receding wings. Most traditional materials have smaller exposed dimensions of 6" or less. The overall feeling of traditional buildings is one that is very much oriented to the scale of the person, almost domestic and enveloping. Those buildings are also very angular, with square corners and acute angles prevailing, to give crisp definition to the volumes. Curved elements are used sparingly and to ornamental effect, if at all. Colors tend to be white, gray, darker earth tones and blues, and cedar left unfinished to weather. These elements can also be employed to produce modern and contemporary buildings that fit in comfortably with traditional buildings.

Contrasting to traditional styles, many of the existing commercial buildings of the WCG study area have flat or low pitched roofs, brick veneer facades, large plate glass windows, and single, large rectangular building masses. These buildings are so generic and recessive that they must rely on large scale signage to be noticed and communicate their purpose. Other commercial buildings appear to be older dwellings that have been converted to commercial use. In too many of the converted buildings, the ground floor retail use has no visual relation to the upper portion of the building, creating a dissonant appearance, without reinforcing or communicating the retail presence. Businesses should be encouraged to remedy these shortcomings as possible during maintenance, repair and renovations, where plan and site review of additions and new construction can prompt larger scale improvements to massing and visual character.

The goal of improving the appearance, massing and siting of buildings in the WCG area is to create a memorable landscape interspersed with landmark buildings that provide a sense of place, and generate an active center for the surrounding neighborhoods. Attractive businesses will benefit the owners as much as the entire community. This center of West Chatham will become a place where people will want to pause and see what is going on, rather than speeding through.

Intersection Specific Recommendations

These recommendations are supplementary to the general Route 28 recommendations

George Ryder Road

Realign the Throat of George Ryder Road- Create a more perpendicular approach to Rt. 28 by adjusting the intersection of George Ryder Road to the West (both the northern and southern portions) within the existing R.O.W. George Ryder Rd continues to have a wider, though narrowed throat, to permit the queuing of several vehicles for left turns without impeding right turning traffic. Painted or thermoplastic stop bars are to be placed behind the pedestrian crossings to indicate halting points for approaching traffic.

Reduce the slope of George Ryder Rd South- The current abrupt slope at the intersection of George Ryder Rd South with Rt. 28 creates a difficult condition for traffic entering the highway. The slope reduces visibility of oncoming traffic and reduces vehicle acceleration, extending the time to complete a turning or crossing maneuver, and therefore increasing risk and susceptibility to collisions and congestion. Regrading this portion of George Ryder Rd for 200' to the south is recommended to attenuate this slope and enhance traffic operations. This regrading also provides an opportunity to review existing curb cuts along that segment of roadway and potentially to relocate any that fall within 75' of the intersection, in consultation with property owners.

Reduce Curb Radii- Modifications are recommended to each of the corners of the intersection to reduce curb radii. Radii have been laid out to accommodate the turning movements of the largest regularly anticipated vehicle – WB-50 semi trailers for George Ryder Rd running north towards the airport, while an SU-30 delivery truck is the design vehicle for the southern extension. Radii range from nearly 70' at Ocean State Job Lot, down to 25' at George Ryder Rd South. Radii have been placed to avoid encroachment onto private property or to interfere with existing activities.

Install Planted Center Median- A planted center median has been designed for placement to the east of George Ryder Rd to accommodate and organize vehicle traffic at that intersection. The median should receive a solid stone curbing with sloped shoulders to resist snow plows and occasional contact, and also to improve its appearance. This median should have sufficient size and prominent location to accommodate a unique and decorative district entry signage marker. The median is also extensive enough to receive extensive plantings, including trees of various prominence and allow sufficient room for root balls, air and water, in addition to other plantings.

Install Crosswalks with Handicapped Ramps- Handicapped accessible roadway crossings have been designed for three legs of this intersection.

The westerly crossing of Rt. 28 is precluded in this case by the presence of an active driveway at the gas station on the northeast corner. The location of the pumps makes it

unlikely that a driveway relocation could be accommodated, or that a preferred reduction in driveway width could result in an acceptable crosswalk. The Town should engage in discussions with this property owner to determine if sufficient reorganization of the gas station property could be made to permit the introduction of this crosswalk.

The easterly crossing of Rt. 28 will occur through an at grade channel through the planted median. This crossing will provide a mid point refuge to pedestrian and cyclists seeking to cross the highway and greatly aiding that movement. The passage through the median will be the same width as the striped pedestrian crossing. Placement of signage and plantings should be such that it affords sufficient visibility of the crossing to pedestrians and motorists alike.

Provide signage and sidewalk access along George Ryder Rd to Bike Trail-

Continuation of the 6' sidewalk is now being extended along the eastern frontage of George Ryder Road's easterly ROW, north to its connection with the bike trail, along with a painted bike lane. This sidewalk should be designed so that its surface is level, with adequate cross slope drainage, and that driveway aprons adjust elevation to meet the sidewalk. Signage consistent with that used at the bike trail should be placed at the intersection and along the sidewalk to direct pedestrians and bicyclists to and from the trail. Directional and alert signage should also be placed regularly along the western side of George Ryder Rd to notify motorists to anticipate cyclists sharing the roadway, and to give directional and routing information to bicyclists.



Modified "bike-in-house" marking

Signage should also be placed along the westerly approach to the district that cyclists are to be anticipated in the roadway. Alerting signage should be placed before the

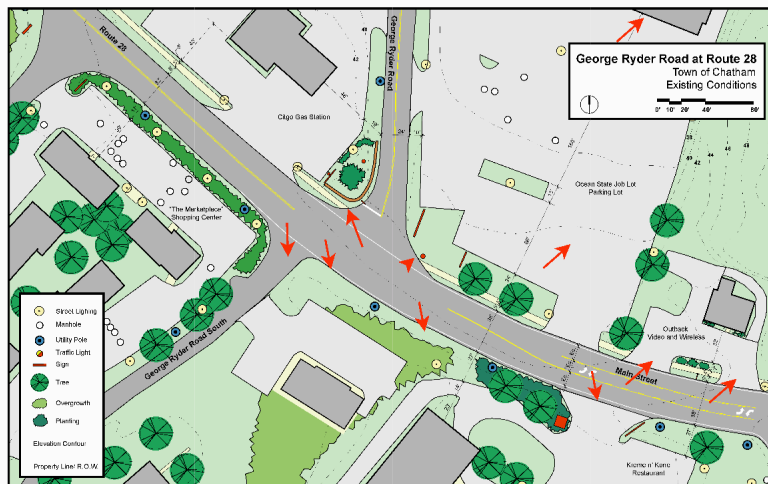
intersection, and bicycle icon roadway markings provided regularly along the fog line of the roadway throughout the WCG area.

Relocated Curb Cuts- Existing driveway access points within 75' of the intersection should be eliminated, relocated or modified as possible to reduce accident hazards. In particular, an entry from George Ryder Rd to the Ocean State Job Lot site should be relocated further to the north. The driveway access now provided to the commercial property on the southeastern corner of the intersection along George Ryder Rd South, avoiding an opening onto Rt. 28, is a successful example of desired improvements.

Driveway access at the gas station on the northeastern corner of the intersection should be examined in consultation with the owner to determine whether and to what extent existing driveway access can be reduced or relocated away from the intersection.

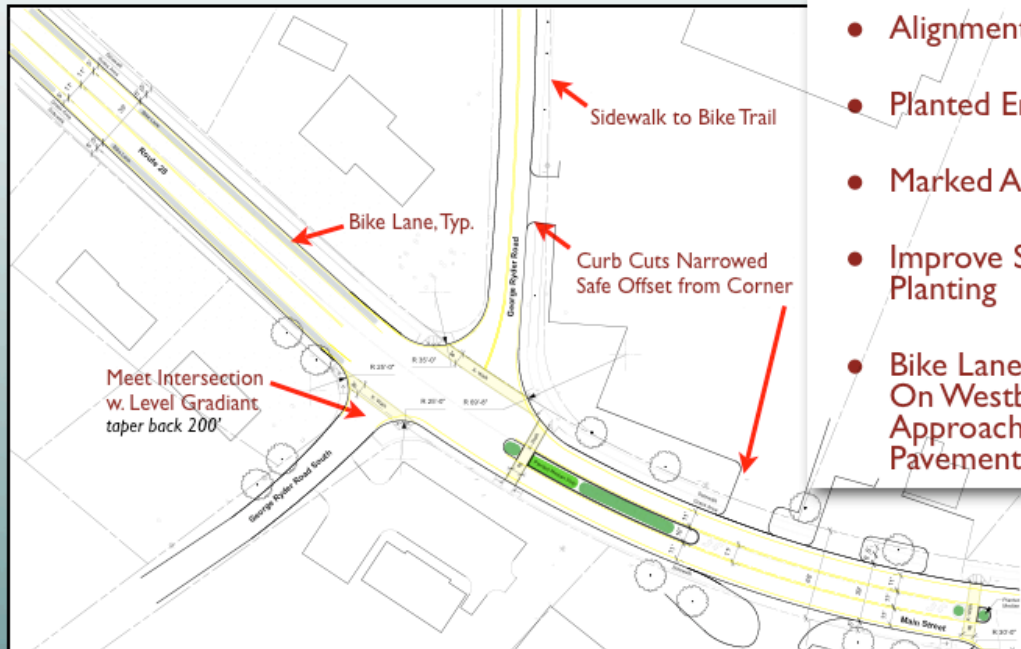
The curb cut from Rt. 28 into Ocean State Job Lot property should be examined in consultation with owners to relocate and narrow the curb cut. Relocating the curb cut further to the east will permit the center median of Main Street to be extended and enlarged. The curb cut is currently far wider than needed to permit the passage of two autos. Service access to the site can be restricted without any harm to the existing driveway access further north along George Ryder Rd.

Sightline Improvements- Visibility at George Ryder Rd South is compromised by planted hedges and signage, creating a hazard to traffic. These elements should be removed or relocated so that there is a clear sightline, minimally of at least 150', to clearly reveal oncoming and turning traffic.



Arrows – Indicate hazardous turning conditions, dangerous pedestrian crossings, overscale & poorly located parking, and improperly sized & located driveway entrances

George Ryder Road Improvements



- Alignment Improved
- Planted Entry Median
- Marked ADA X-ings
- Improve Sidewalks & Planting
- Bike Lanes Both Sides, On Westbound Approach, w. R.O.W. Pavement Widening



Seaquanset Road Improvements



Addition better addresses Sequanset Street, & new stone wall & plantings defines entry

Seaquanset Road

Reduced Curb Radii- Curb radii at Seaquanset Road can be reduced to 30' and accommodate all typical service vehicles and turning movements.

Planted Center Medians- Center medians should be placed both to the east and west of the Seaquanset Rd intersection to better organize turning movements and to protect pedestrian crossings of Main Street. The westerly median will be of a smaller size to accommodate existing driveway access, but it can protect the pedestrian crossing. The easterly median needs to be designed in concert with proposed development of the southeastern corner of the intersection. A protected pedestrian crossing should be provided at that location, with a substantial planted portion extending further to the east.

Install Crosswalks with Handicapped Ramps- Striped and signed crosswalks can be readily accommodated to the west and south of the intersection, with full handicapped ramps. Pedestrian crossing of Main Street to the east is contingent upon the opportune design and reconstruction of the former High Tides Restaurant building now being permitted for the southeastern corner of the intersection. Location of driveway access to the eastern side of the Rt. 28 frontage (and Seaquanset Rd driveway access behind the rear building line) will enable the placement of an easterly crossing of Rt. 28 at the edge of the intersection.

Relocated Curb Cuts- Driveway access to the southeastern corner of the intersection should occur through curb cuts which have been moved well away from the intersection, providing more than 75' clearance to the intersection without hampering circulation or parking on the property.

Seaquanset Road – Intersection Detail



Barn Hill Road

Signalized Intersection- The existing intersection at Barn Hill Road is hazardous and the existing island and flashing yellow light have proven ineffective in organizing and moderating traffic flow, or in facilitating turning movements. At minimum, the location of the flashing yellow light should be relocated to provide additional visibility and authority in alerting drivers and in encouraging yielding behavior for turning traffic. The simplest change to the flashing yellow light would be to install a mast arm fixture on the existing, or upgraded post foundation now present. An alternate possibility is to suspend the flashing yellow light from a high mounted catenary cable over the centerline of Rt. 28.

A flashing yellow light is a warning to anticipate turning traffic or other potential hazard, but it is not a directive to yield or otherwise facilitate turning traffic. Other methods may be needed to assist turning traffic. Placement of signage directing traffic to yield to turning vehicles should be placed on the Rt. 28 approaches to Barn Hill Rd.

A study should be made of the impact on traffic and the improvement in operations by the conversion of this intersection to fully signalized operation. As the difficulty in making turning movements is most pronounced during the summer peaks, this light could be timed to revert to flashing operation in off peak times and during the winter months. Loop detectors could be placed beneath the Barn Hill approach lane to trigger signal cycling. Loop detectors cannot be placed beneath the westbound Rt. 28 approach, and so an above ground detection method may be called for, or a standardized signal interval should be provided to accommodate those left turn movements during the peak months and hours.

Throat of Barn Hill Rd Relocated- The intersection of Barn Hill Rd at Rt. 28 has been designed to provide a more perpendicular approach to the intersection, easing a number of turning movements. This has enabled an enlargement of the existing island dividing the north and southbound lanes of Barn Hill Rd, allowing it to receive permanent plantings, and minor modifications of the curb radii to better accommodate turning traffic. This has permitted a modest amount of area to be provided next to the Shop Ahoy corner.

Planted Center Median- A new center median has been designed for placement to the western side of the intersection extending to the west to organize turning movements into the Shop Ahoy Plaza, and also to the Hennigan parcels. This median has sufficient size and prominent location to accommodate a unique and decorative district entry signage marker. This parcel can also accept substantial plantings, so long as visibility of the pedestrian crossing is not impeded.

Install Crosswalks with Handicapped Ramps- New striped and handicapped accessible pedestrian crossings have been designed to cross Barn Hill Rd and to cross Rt. 28 to the west. Both of these crossings include protected center median refuges to ease pedestrian travel and safety.

The location of existing driveway access and parking area to the commercial property to the southeast of the intersection makes it unlikely that a pedestrian crossing could be safely and successfully introduced there. This parcel has a number of site constraints and operational requirements that make alterations to the Rt. 28 frontage quite difficult. However, Town Planning staff should work with the new owners of this property to determine if reconfiguration of the site could be made and a pedestrian crossing placed.

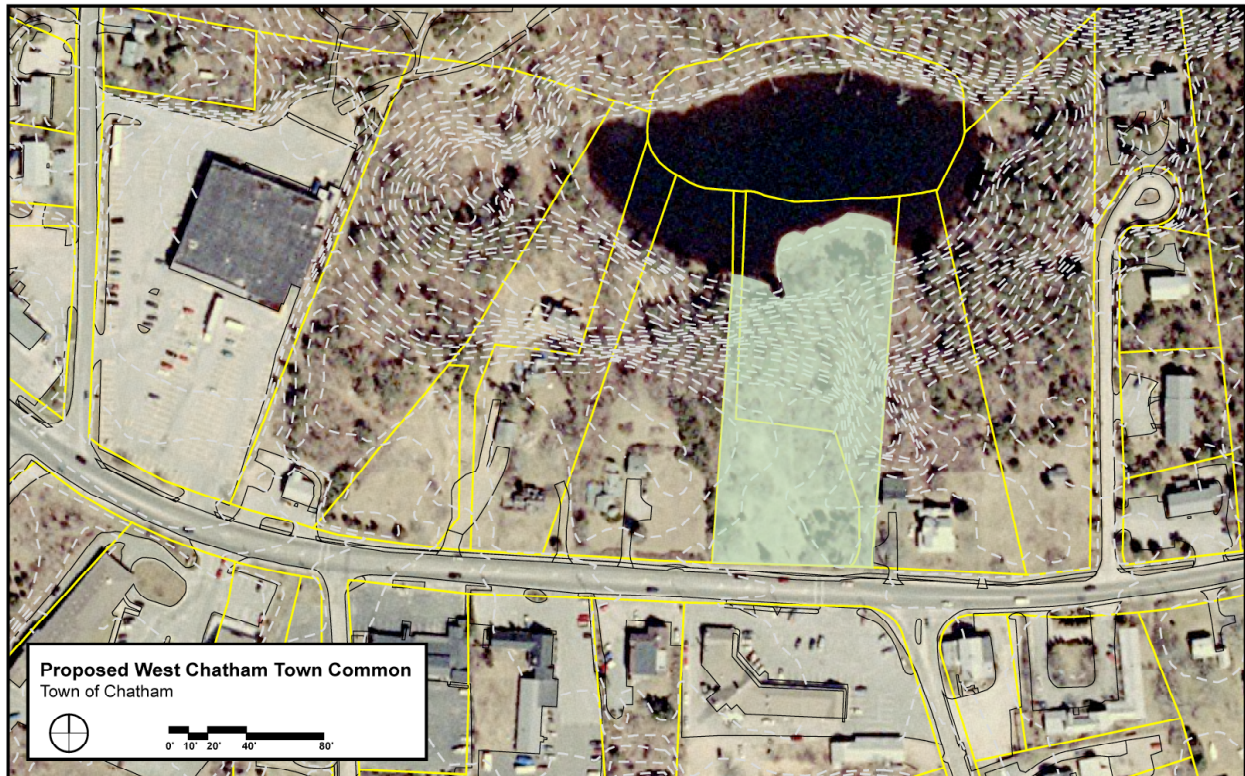
Relocated Curb Cuts- Curb cuts should be removed from locations nearer than 75' to the intersection, as possible. Curb cuts should be narrowed to the greatest degree possible, and eliminated where duplicative.

The greatest opportunities occur at the Shop Ahoy Plaza, where Town Planning staff should work in concert with the owners to identify the most appropriate modifications to existing access points and site circulation. It may be possible to entirely eliminate the driveway which faces a side wall of the plaza building. Frontage access between the Plaza and its westerly neighbor may be able to be established to add circulation capacity and to promote shared parking usages. It may prove opportune to relocate the remaining Rt. 28 curb cut of Shop Ahoy further to the west, and to align it with the needed driveway access to the Hennigan property.

Access to the Shop Ahoy Plaza from Barn Hill Rd should be examined to determine how much narrowing and separation of the undifferentiated driveway apron, extending across the majority of the property, can be minimized. WCG study identified the need to provide for WB-50 access to service the shops from a service drive located from the south – a drive that might be extended for use to service adjacent properties, and potentially taken further west to the post office plaza. Current planning suggests that a planted roadside margin could be extended a substantial distance down the Barn Hill frontage, with a commensurate reduction of the existing driveway. This plan left a single, large driveway access from Barn Hill for both auto parking circulation and for truck servicing needs. It is quite likely that this could be further organized into two smaller driveway aprons, separated by a planted area of up to thirty feet in length.

Improved driveway access may make it possible to redesign the parking layout at the plaza to provide for improved circulation, and additional parking spaces.

Site Specific Recommendations



Hennigan Property Nature Area

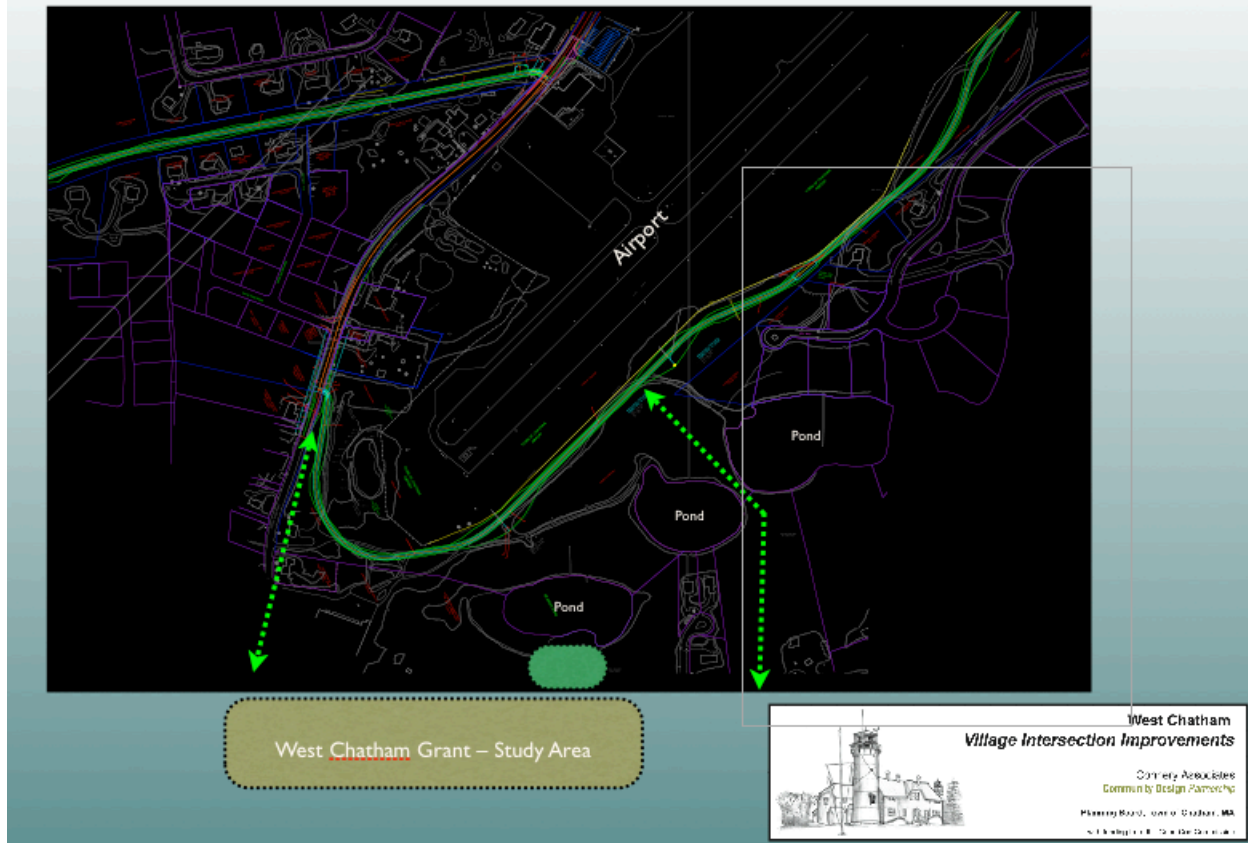
Provide Curb Cut and Parking Area- Current, informal driveway access is insufficient and improperly located for best use of this site. A new driveway access with an adjacent pathway for pedestrians, with an improved curb cut, should be located towards the center or western side of the property. The parking area can be dirt or gravel and limited to approximately five vehicle spaces. The parking area should be clearly marked and bounded to preclude parking outside of the designated area. The parking area should be near to Main Street, but separated by approximately 20' and partially screened with foliage.

Provide Informational Signage- The Nature Area should be marked by signage along the roadway, helping to mark the driveway entry. There should be a wayfinding map placed by the parking area to orient visitors and indicate the trails and features of the property. The potential to view and enjoy the pond should be explored and made part of the informational and interpretive elements.

Provide Trash Barrel and other Amenities- User amenities should be located in or near the parking area for the convenience of users and to improve the maintenance and operational needs of the land. Trash barrels and a dog waste station will be needed, directional and interpretive signage, potentially with trail maps and other interpretive materials will also enhance users experience.

Weatherboard Lane Trail Connection

Ped/Bike Circulation & Trail Connectors



Utilize Town Parcels to establish trail ROW & Alignment- By combining a series of town owned parcels of undeveloped land, and potentially a segment of a public side street, a trail connection can be created between Main Street and the Bike Trail to the east of Weatherboard Lane. This trail can connect with the existing 4' sidewalk on the northern side of Rt. 28. The trail alignment will follow a narrow isthmus between two kettle hole ponds before connecting with the bike trail. The connection will enable a circuit to be established in the WCG area, greatly enhancing the utility and convenience of the bike trail and the proposed Rt. 28 improvements.

Develop Soft Surfaced Trail- The trail should reflect the wooded environs of its site, and clearly be a connecting link between the road and the trail. Establishing a different visual character differentiating this trail from the bike path will increase its interest. The surface of the trail should be of compacted stone dust or porous paving so that it may be used by all of the users of the bike trail. Stone dust will also be more economical to install and maintain than bituminous concrete.

Investigate potential encroachment on Wetlands- As the trail will pass near two ponds, and the particular characteristics of the properties have not been surveyed, wetlands and associated plant and animal species may be present and needing protection from overuse of the land by a trail. Trail alignment may need to be adjusted, or bridging elements installed to minimize potential impacts.

Provide Informational, Interpretive and Directional Signage- Greatest use and benefit of the trail will result if there are clear and visible markers to alert potential users and guide them. Signs indicating destinations, distances, amenities, natural features and explanatory information will enhance users experience.

Site and Install User Amenities- Provide elements for comfort and recreational needs of trail users. Elements can include benches, trash cans, map boards and map dispensers, donation boxes, and dog waste stations.

Implementation

Implementation of this study has been organized so that elements can be undertaken as resources permit, with each piece supporting the others, but with little overlap and contingency between the elements. It is anticipated that the various actors and bodies able to make improvements to Rt. 28 will proceed to do so, coordinating their efforts primarily through the Planning Department of Chatham, but able to act independently. It will not be necessary for the project to be delayed until funds are allocated through the TIP process, although it is likely that the larger reconstruction elements will require those funds in order to be constructed. Implementation items can be phased as finances and roadway projects permit. Private parties have the ability to implement elements of the plan on their properties independently, although coordination with other businesses and the Planning Department are likely to yield more efficient use of resources and better integration of the elements and enhanced functionality.

The Town has the ability to undertake elements of this project on their own, to seek funding from a variety of sources, to liaise with the Cape Cod Commission, MHD and political representatives, and to work with local businesses and property owners. This gives the Town an advantageous position to oversee implementation of the various elements of the West Chatham Grant. Some of the recommendations of this study can be immediately implemented by the Town as an outgrowth of current work, or by minor modification to ongoing projects. Repainting of lane markings to reduce their widths, and additional roadside directional and advisory signage can be implemented in concert with routine maintenance efforts.

Businesses can immediately provide additional plantings and landscaping at a small scale, expanding the area and investment over time as other portions of site reorganization proceed. Improved commercial signage, reorganized parking areas, and implementing shared parking strategies can be done by business individually, as well as in concert with others.

New construction efforts can bring buildings closer to the roadway, improve the massing and appearance of buildings, orient entrances to the front of buildings, using buildings as signifiers limiting the necessity for outsized signage. These efforts can be enhanced and made more stringent and compulsory through actions by the Town, but local businesses may want to undertake these efforts on their own, simply as a part of prudent business operations.

Widened sidewalks on both sides of the roadway will encourage pedestrian circulation, emphasize traffic calming, provide safe passage for younger cyclists, and provide for additional and denser plantings that provide senses of comfort and belonging.

Barn Hill Rd – Intersection Detail

New Rt 28 Median

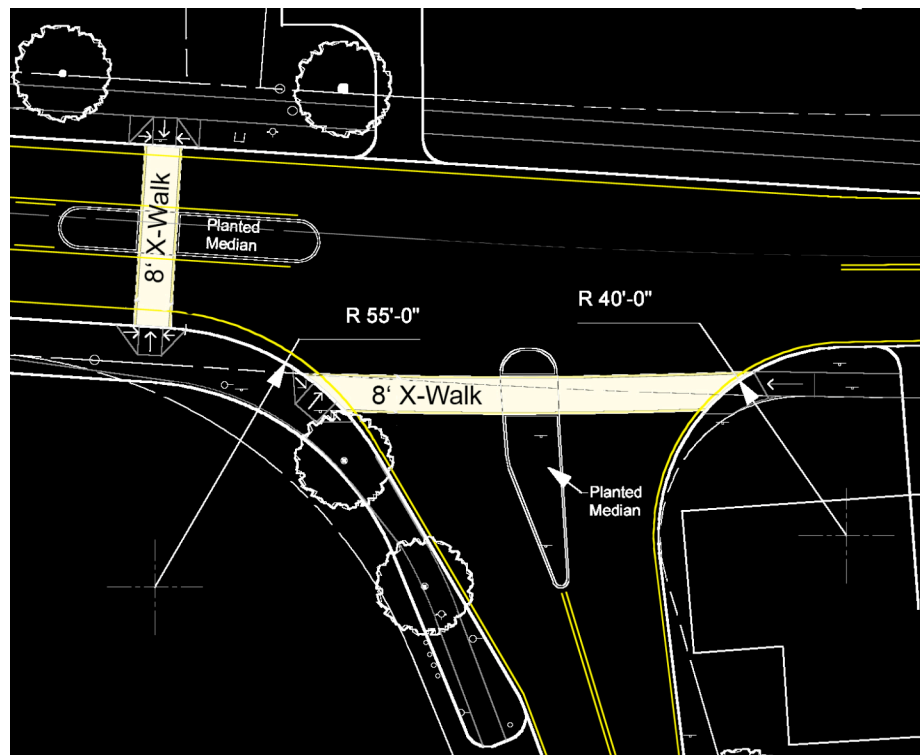
Enlarged Barn Hill
Median

Protected ADA
Crosswalks

Narrowed Curb Radii

New & Widened
Sidewalks

Driveways
reconfigured



Conclusion and Next Steps

The West Chatham Grant project has investigated and identified a series of improvements and actions that will substantially remedy existing shortcomings to roadway operation and commercial district operation. These recommendations are self supporting, but also able to be implemented as an integrated and phased series of complementary steps. These recommendations are specific, but retain flexibility for modification in their implementation by various parties, and are able to be refined over time, as needed.

Project implementation should focus on the issues identified as the highest priority and for earliest implementation, generally to be initiated within the next year. Concurrent efforts should be made to initiate the mid and longer range objectives. Successful accomplishment of the more difficult goals will require consistent effort in concert with other parties, applied over a period of several years. Construction drawings will need to be completed. Liaison with businesses and property owners must be conducted and maintained. Coordination of activity on the county and political level will be instrumental in securing funding and approvals for intersection modifications.

As an interim measure, it is recommended that some of the more far reaching proposals and more expensive elements be modeled in place with inexpensive and temporary elements. This modeling can be used to provide the earliest possible benefit from the intersection and roadway redesign, and to test the effectiveness of the recommendations as well as to identify modifications and adjustments that might improve the success of these elements. Showing early success for the plan elements can be a crucial step in securing additional support and funding.

It is also recommended that the Community Development Department of Chatham conduct a periodic review of progress and make recommendations for additional project elements or modifications to the plan on a biennial basis, while the Department is focused on a work plan broken out into monthly goals.

Completion of these project elements may require a decade or longer for full implementation. Regular public information release, periodic events, meetings and other activities may be necessary to keep this project foremost in stakeholders imagination and priorities. Recognition of these accomplishments will make it easier to secure following stages, and to extend the benefits and lessons of this project.

Appendices

- A Full Size Project Drawings**
- B Traffic Counts**
- C Accident Incidence**
- D Roadway & Walkway Signage**
- E Context Photos**
- F Presentations Powerpoints**
- G Bibliography**